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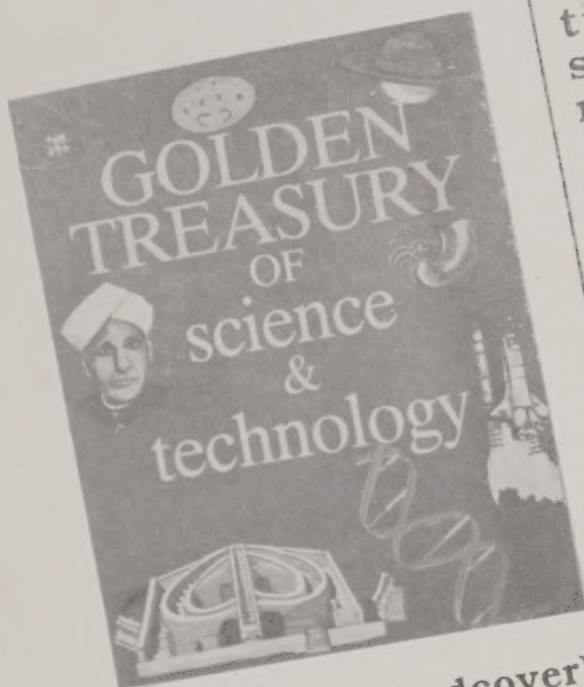
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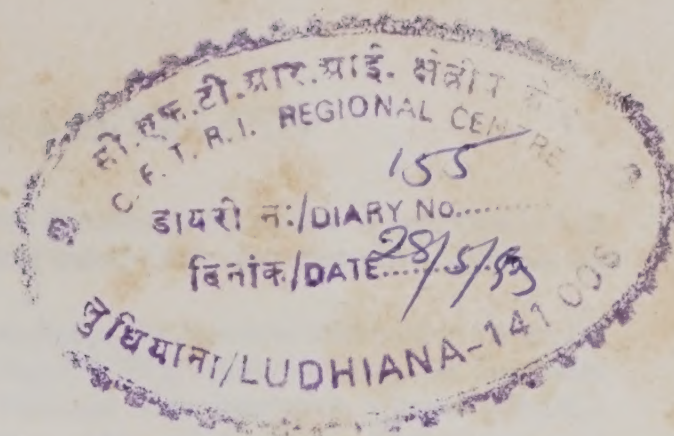
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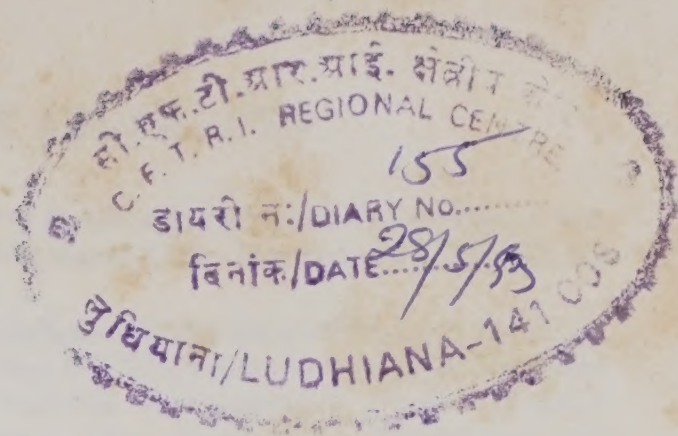
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Medicinal & Aromatic Plants Abstracts

Agronomy

9302-0655 Anwar, M., Patra, D.D., Mukhopadhyay, A.K., Singh, D.V. (Central Institute of Medicinal and Aromatic Plants, Post Bag No. 1, RSM Nagar, Lucknow 226016, UP, India) **Relationship of manganese with iron and zinc with respect to dry matter yield and nutrient uptake in opium poppy (*Papaver somniferum* Linn.).** *International Journal of Tropical Agriculture*, v. 9(1): p. 66-70, 1991 (11 ref, Eng).

To study the relationship of Mn (0, 15 and 30 kg/ha) with Fe (0, 15 and 30 kg/ha) and Zn (0, 10 and 20 kg/ha) on the yield and nutrient uptake in opium poppy, two field experiments were conducted for two years (1983-84 and 1985-86). The application of 15 kg/ha Mn and Fe and 10 kg/ha Zn and the combined applications of Mn (15 kg/ha) and Fe (15 kg/ha), as well as that of Mn (15 kg/ha) and Zn (10 kg/ha), significantly influenced the dry matter yield and N, P, K, Fe, Mn and Zn uptake by opium poppy. An antagonism between the levels of Mn and Fe and that of Mn and Zn was observed when Mn and Fe levels were increased from 15 to 30 kg/ha and that of Zn from 10 to 20 kg/ha.

9302-0656 Chatterjee, S.K., Chatterjee, S.K. (West Bengal Pharmaceutical & Phytochemical Development Corporation Limited, Ilaco House (2nd Floor), 1&3, B.T. Maharaj Sarani, Calcutta 700001, WB, India) **Cultivation of medicinal and aromatic plants in W.B..** *International Seminar-Traditional Medicine, Calcutta, 7-9 November*, p. 70-71, 1992 (Eng).

In West Bengal improved agrotechnological methods have enhanced quality of traditional drug plants by ensuring better growth and development due to improved soil conditions, improved cultural practices, standardisation of nutrient requirements, intensive farming techniques controlling diseases and pests, overcoming other constraints of growth and maintaining genetic purity. Appropriate topographical placement of different alkaloid yielding, glycoside yielding, essential oil-yielding species have established higher yield and better quality revealing specific requirement of some environmental parameters. Analysis of developmental growth and functions pointed out that regulation of these parameters could be made congenial to production of active principles of high order; the phenomenon of reproductive metabolites. Studies also pointed out that environmental factors like light and temperature could be modulated with advantage to majority of species in formation of different alkaloids, glycosides and essential oils.

9302-0657 Emongor, V.E., Chweya, J.A., Keya, S.O., Munavu, R.M. (Department of Crop Science, University of Nairobi, PO Box 29053, Nairobi) **The effect of nitrogen and phosphorus on growth and flower yield of chamomile.** *East African Agricultural and Forestry Journal*, v. 55(2): p. 63-67, 1989 (Recd. 1992, 15 ref, Eng).

Top-dressing chamomile (*Matricaria chamomilla*) plants with 50 kg N/ha two weeks after transplanting resulted in high vegetative growth and flower yield. Phosphorus and the interactions of nitrogen and phosphorus had no significant influence on chamomile growth, development and flower yield. Nitrogen had a significant increase on vegetative growth and flower yield of chamomile plants, while application of 50 kg N/ha gave the best results.

9302-0658 Hofman, P.J., Menary, R.C., Clark, R.J. (Department of Horticultural Science, University of Natal, PO Box 375, Pietermaritzburg, 3200 Republic of South Africa) **Effect of growth retardant EL 500 on growth and plant growth substances in fennel (*Foeniculum* spp.).** *Journal of Essential Oil Research*, v. 4(4): p. 401-409, 1992 (11 ref, Eng).

Application of EL 500 (0.8, 1.6 and 3.2 g m²) reduced canopy and stem height and increased the number of rays per umbel. The effect was negated by gibberellin sprays. The endogenous gibberellin concentration, was reduced by 75 percent, 35 days after treatment. Auxin and abscisic acid concentrations were also reduced. Cytokinin concentrations were generally increased by EL 500 treatment. It was concluded that EL500 produces its growth retarding effect through lowering the endogenous gibberellin concentration and that flower initiation may be affected by interaction between auxin and gibberellin in fennel. The time of flowering was not affected by EL 500 or gibberellin treatment.

9302-0659 Ingle, S.N., Thakre, R.D.*, Joshi, B.G., Mahorkar, V.K. (Nagarjuna Medicinal Plant Garden PKV, Akola 444 104, Maharashtra, India) **Effect of nitrogen levels with spacing on the growth and yield of Clocimum.** *PKV Research Journal*, v. 15(2): p. 125-128, 1991 (4 ref, Eng).

In a trial to study the effect of N levels and spacing on growth and oil yield of clocimum (*Ocimum gratissimum*) the increasing N levels from 30-90 kg/ha showed progressive improvement in growth of crop. Among spacing 75 x 75 cm produced better vegetative growth. Combination of 90 kg N and 75 x 75 cm spacing produced maximum growth. The oil content was also favourably influenced by 75 x 75 cm spacing and 90 kg N/ha like growth parameters. NSL, New Delhi.

9302-0660 Kargiwar, R.R., Kulwal, L.V. (Department of Agricultural Economics PKV Akola, Maharashtra, India) **Effect of date of planting on growth and yield of different varieties of garlic under Akola condition.** *PKV Research Journal*, v. 15(1): p. 23-27, 1991 (9 ref, Eng).

Studies involving planting of six varieties of garlic (*Allium sativum*) carried out during winter season of 1987 have revealed that number of leaves, height of plant, yield contributing characters as well as yield were significantly influenced by dates of planting varieties. Positive correlation was observed between growth and yield contributing characters with yield. NSL, New Delhi.

9302-0661 Pandalal, R.C., Chacko, K.C. (Division of Silviculture, Kerala Forest Research Institute, Peechi 680653, Kerala) **Early growth and survival of Eucalyptus tereticornis SM. seedlings and stumpings.** *The Malaysian Forester*, v. 50(3&4): p.385-390, 1987 (Recd. 1992; 19 ref, Eng).

In field cultivation trials there were ten treatments and the observations were recorded for five months. Among these stumps (15 cm root/5 cm shoot, prepared from 18 month old seedlings) planted after storing under shade in moist gunny bags for four days and 3 month old polypot seedlings planted in pits of 30x30x30 cm size registered better survival. Height increment in all the ten treatments remained the same. However, long term trials would be required to substantiate the preliminary findings.

9302-0662 Sharma, P.C. (JN Ayurvedic Medicinal Plants Garden and Herbarium Kothrud, Pune, Maharashtra, India) **Depletion of Medicinal plants- a challenging problem of the present era.** *Proceedings of National Workshop on Dravyaguna, Varanasi, UP, India*, February 17-19, 1992, p.5 (Eng).

Prevalent causes of depletion of medicinal plants and their cultivation have been discussed.

9302-0663 Sharma, S., Tyagi, B.R., Naqvi, A.A., Thakur, R.S. (CIMAP, P Bag No.1, RSM Nagar, Lucknow 226016, UP, India) **Stability of essential oil yield and quality characters in Japanese mint (*Mentha arvensis* L.) under varied environmental conditions.** *Journal of Essential Oil Research*, v. 4(4): p. 411-416, 1992 (11 ref, Eng).

Phenotypic stability for herb yield, leaf-stem ratio, essential oil yield, oil content and menthol and menthone contents were estimated for seven genotypes of *Mentha arvensis*. Wide range of variability was observed in each character over environment. Hybrid CIMAP/MAS-77 yielded the highest mean oil yield (157.6 kg/h) for each of the environment followed by CIMAP/MAS.25 and CIMAP/MAS-1, CIMAP/MAS-1 was the most stable genotype for

all the characters examined. Genetic and environmental interactions were significant for all the agronomic traits and quality characters; indicating the significant influence of the environments on these characters. All the genotypes showed increased oil yield, herb yield, and leaf stem ratio for better environments as judged from their correlations with environmental mean oil yield.

9302-0664 Singh, V.P., Kothari, S.K., Duhan, S.P.S., Singh, D.V. (Central Institute of Medicinal and Aromatic Plants, Lucknow-226016, UP, India) **Response of citronella java (*Cymbopogon winterianus* Jowitt) to date of planting and frequency of harvest in sub-tropical India.** *International Journal of Tropical Agriculture*, v. 9(1): p. 71-77, 1991 (8 ref, Eng).

In a 2-year field study on the planting time and the harvesting frequency of *C. winterianus*, the February planting significantly increased the herb yield (38 percent), oil yield (28 percent), and the net income (40 percent), as compared to the normal July planting. While the planting dates did not influence the oil recovery, three harvests per year gave the highest herb and oil yields and the net income as compared to two or four harvests. The oil quality was not affected much by both the planting dates and the harvesting frequency. The citronellal content of the oil in all the treatments was upto the ISI specifications.

9302-0665 Southwell, I.A., Stiff, I.A. (Agricultural Institute, Wodlongbar, NSW, 2477, Australia) **Terpinolene varieties of *Malaleuca*.** *Journal of Essential Oil Research*, v. 4(4): p. 363-367, 1992 (16 ref, Eng).

Terpinolene rich chemical varieties of *Melaleuca alternifolia* (tea tree oil) *M. trichostachya* have been found in both natural and cultivated stands. The variation in chemical composition of these varieties, which also contain substantial quantities of 1,8 cineole is reported.

9302-0666 Szebeni-Galambosi, Z., Galambosi, B., Holm, Y. (Agricultural Research Centre, South Savo Research Station, 50600 Mikkeli, Finland) **Growth, yield and essential oil of lovage grown in Finland.** *Journal of Essential Oil Research*, v. 4(4): p. 375-380, 1992 (11 ref, Eng).

Lovage, *Levisticum officinale*, reached maximum height of 2-2.5m in the 2nd year. The root weight continued to increase as the plant grew older, until it reached a maximum of 1.1 kg/plant in the fifth year. In the second year 0.2-0.3 kg/m² dry leaf and in the 3rd year 0.5-0.6 kg/m² dry root yield can be expected from the cultivations. The quantity of the essential oil obtained from dry leaves varied between 0.16-0.31 percent, and its main components were alpha-terpenyl acetate (60 percent) and beta-phellandrene (16.25 percent). The essential oil in the one year old roots

was 0.17 percent and in two one old roots 0.83-1.30 percent. The main component of the root oil was (Z)-ligustilide (37-62 percent)..

9302-0667 Zalecki, R., Kordana, S., Wolski, T., Glinski, J. (Instytut Roslin i Przetworow Zielarskich, ul. Libelta 27, 61-7-7 Poznan, Polska) **The influence of the keratin-bark-urea granulated mass on the herb crop and on the content of the essential oil in medicinal plants.** *Herba Polonica*, v. 37(3-4): p. 143-149, 1991 (15 ref, Eng, Pol).

The influence of the keratin-bark-urea granulated mass (KKM) on the gain in weight of the crop and on the content of the essential oil in some medicinal plants: Sweet Basil *Ocimum basilicum*, Marjoram *Origanum majorana* and sage (*Salvia officinalis*) has been examined in pot experiments. The preliminary results have shown the advantageous influence of KKM on the investigated plants.

Botany (General & Systematic)

9302-0668 Amalraj, V.A., Velayudhan, K.C., Muralidharan, V.K. (NBPGR, Regional Station, Thrissur 680654, Kerala, India) **A note on *Curcuma kannanorensis* var. *lutea* Ansari et al. (Zingiberaceae).** *Journal of Economic & Taxonomic Botany*, v. 16(2): p. 349-350, 1992 (5 ref, Eng).

Diagnostic taxonomical and morphological characters of the plant species have been given. Distinguishing features from other species have also been discussed.

9302-0669 Basu, P., Mitra, B. (Botanical Survey of India, Howrah 711103, WB, India) **Preliminary notes on the climbing taxa of Andaman & Nicobar islands with special reference to their importance.** *Journal of Economic & Taxonomic Botany*, v. 16(2): p. 393-399, 1992 (Eng).

Diagnostic features and medicinal uses of thirty three plant species belonging to twenty two families have been enlisted.

9302-0670 Bedi, R. (L 6, Rajouri Garden, New Delhi-110027, India) **Herbal Wealth of Brazil.** *Sachitra Ayurved*, v. 45(5): p. 356-360, 1992 (Eng).

Local, Hindi, Sanskrit and English names of fourteen medicinal plants of Brazil, including species of *Centella*, *Centratherum*, *Cephaelis*, *Cinchona* and *Cinnamomum* have been given.

9302-0671 Bedi, R. (L6, Rajouri Garden, New Delhi 110027, India) **Herbal Wealth of Brazil.** *Sachitra Ayurved*, v. 45(1): p. 39-44, 1992 (Eng).

Local, Hindi, Sanskrit and English names of twenty three medicinal plants of Brazil, including species of *Boerhaavia*, *Bixa*, *Bidens*, *Bowdichia*, *Brysonima*, *Caesalpinia* have been given.

9302-0672 Bedi, R. (L6, Rajouri Garden, New Delhi 110027, India) **Herbal wealth of Brazil.** *Sachitra Ayurved*, v. 45(3): p. 201-205, 1992 (Eng).

Local, Hindi, Sanskrit and English names of nineteen medicinal plants of Brazil, including species of *Capparis*, *Carum* and *Cassia* have been given.

9302-0673 Bhagat, S., Singh, V., Singh, O. (Conifers Research Centre, Shimla, HP, India) **Studies on germination behaviour and longevity of *Woodfordia fruticosa*, Kurz seeds.** *Indian Forester*, v. 118(11): p. 797-799, 1992 (7 ref, Eng).

Germination of seeds in sand was found to be better than that in brick powder and soil. The seeds stored at normal room conditions showed a decline in viability from initially 96 percent to 1.25 percent in twelve months.

9302-0674 Biswas, S., Kukreti, S. (Systematic Botany Discipline, Division of Botany, Forest Research Institute, Dehradun UP, India) **Carpological studies- An aid to the identification of Indian trees- *Terminalia* Linn..** *Indian Forester*, v. 118(11): p. 813-821, 1992 (5 ref, Eng).

From the carpological accounts on twenty species of *Terminalia* including *T.chebula*, *T.bellirica* and *T.arjuna*, have been grouped under five classificatory units for aid in identification. Illustrations of carpological materials and a table showing distribution of species in different parts of India are given. The species have been provided with carpological description, important vernacular names and phenology.

9302-0675 Dickson, J.H. (Department of Botany, University of Glasgow, Glasgow, Scotland) **Some recent additions to the quaternary flora of Scotland and their phytogeographical, paleoclimatic and ethnobotanical significance.** *Acta Botanica Fennica*, v. 144(1): p. 51-57, 1992 (49 ref, Eng).

The phytogeographical and paleoclimatic significance of Scottish Late Devensian macrofossils of *Silene furcata*, *Glaux maritima* and *Aongstroemia longipes* discussed. Scottish archaeological remains of *Allium urisium*, *Atropa belladonna*, *Bidens cernua*, *Catabrosa aquatica*, *Euphorbia lathyrus*, *Ficus carica*, *Radiola linoides*, *Ranunculus ficaria* and *Rubus chamaemorus* are considered from the standpoint of ethnobotany and paleogeography M. Idris.

9302-0676 Haq, I., Zeb, M.A., Rizvi, S.M.A. (Department of Botany, Peshawar University, Peshawar, Pakistan) **Germination and growth behaviour of *Trigonella foenum-graecum* Linn., under different conditions of soil and light.** *Hamdard Medicus*, v. 35(3): p. 89-94, 1992 (7 ref, Eng).

Three different conditions affected the germination and growth of the plant. Large numbers of seeds germinated in organic soil in all three conditions of light. Organic soil was found to be the best for growth under full and partial light, while in shade the plants did not survive. The dry and fresh weight of the plants, number of pods and seeds were more in full light than other light conditions.

9302-0677 Lempiainen, T. (Department of Biology, University of Turku, Turku, Finland) **Past occurrence of *Hyoscyamus niger* L. (Solanaceae) in Finland according to the macrofossil finds.** *Annales Botanici Fennici*, v. 28(4): p. 261-272, 1991 (55 ref, Eng).

Macrofossil seed finds of the henbane (*H. niger*) were analysed at 5 sites of ancient settlement in S. Finland. The dates of the sites, determined archeologically, ranged from the Viking Age to the 19th century. The number of soil samples studied was 492. The seeds of henbane were fairly common in the late medieval settlement layers of Turku, Kaarina, the bishop's castle of Kuusisto, and also the 17th century layers of the fortress in Lappeenranta. A few seeds were found in the 18th century layers of Naantali and one charred seed at the level of an ancient field in Rapola, Saaksmaki, dated to the Viking Age. Henbane was most probably brought by man to the studied sites as a medicinal plant. According to the present macrofossil finds, the henbane arrived in S. Finland at the same time as in Sweden. M. Idris.

9302-0678 Nair, M.N.B. (Department of Botany, University of Delhi, Delhi 110007, India) **Wood anatomy of some members of the Meliaceae.** *Phytomorphology*, v. 41(1&2): p. 63-73, 1991 (Recd. 1992; 25 ref, Eng).

The wood anatomy of six species of family Meliaceae has been described. Wood has been reported to be ring porous in *Melia azedarach* and diffuse porous in *Azadirachta indica*. Helical thickenings were present on the inner surface of the vessel member walls in all the species studied. The thickenings were prominent in the narrow vessel member walls.

9302-0679 Outenbreit, K.A., Staniforth, R.J. (Department of Biology, University of Winnipeg, 515 Portage Avenue Winnipeg, Main, Canada R3B 2E9, Canada) **Life cycle and age structure of ramets in an expanding population of *Salix***

***exigua* (Sandbar Willow).** *Canadian Journal of Botany*, v. 70(6): p. 1141-1146, 1992 (32 ref, Eng).

The life history, age structure, sex ratio and longevity of Manitoban populations of *S. exigua* were analysed and growth rates of male and female plants were compared. No significant differences were seen between sexes. Significant linear correlations existed between basal stem diameter and age and between stem height and age. Flowering occurred in a few 2- and -3 year old stems, regardless of sex. The oldest stem encountered among the populations was 31 years old and had sprouted soon after the point bar had started to form. The sex ratio of 1.7:1.0 significantly favoured males.

9302-0680 Pasteels, J.M., Rowell-Rahier, M. (Laboratoire de Biologie Animale et Cellulaire, Université Libre de Bruxelles, Belgium) **The chemical ecology of herbivory on willows.** *Proceedings of The Royal Society of Edinburgh*, 98B: p. 63-73, 1992 (53 ref, Eng).

Phenolic secondary compounds and trichomes are instrumental in the regulation of herbivory on Salicaceae. The roles of phenolics in willows as toxins or deterrents, as phagostimulants or ovipository signals, and as precursors in insect chemical defence are briefly reviewed. The interactions between salicaceous plants, herbivores and their predators are discussed in the context of theories on the evolution of interactions among three trophic levels.

9302-0681 Prakash, V., Mehrotra, B.N. (Botany Division, Central Drug Research Institute, Lucknow 226 001, UP, India) ***Valeriana assamensis* Gand. : A forgotten species of Indian flora.** *Indian Journal of Forestry*, v. 15(3): p. 271-272, 1992 (Eng).

V. assamensis was described by Gandoger in 1918 from Jaintia Hills, Meghalaya. However, since then, this species was not recorded so far from India, either in literature or in herbaria. Some specimens of this forgotten species located in herbarium of BSI, Shillong (Assam) and Colmbatore (MH), have been described and illustrated to facilitate its identity.

9302-0682 Rajeshwara Rao, B.R., Bhattacharya, A.K., Kaul, P.N. (CIMAP, Regional Centre, Boduppal, Hyderabad 500039, AP, India) **Accumulation and distribution of dry matter in periwinkle, *Catharanthus roseus* (L.) G. Don.** *Indian Drugs*, v. 29(14): p. 655-657, 1992 (8 ref, Eng).

With the advancement in crop age, the contribution of stem and branches to dry matter of the whole plant increased while that of leaves decreased. The contribution of roots was more in the initial months. Flower production was continuous but the reproductive parts did not follow any definite

pattern except that the purple flowered plants (var. *roseus*) had higher values at all stages indicating its higher reproductive capacity. While type (var. *alba*) accumulated more of its dry matter in stem and branches than the purple type.

9302-0683 Rushton, B.S. (Applied Ecological Sciences Research Group, Department of Biological & Biomedical Sciences, University of Ulster Coleraine) **Variation in reproductive allocation of *Plantago coronopus* L. related to habitat type and geographical location.** *Proceedings of The Royal Irish Academy*, v. 90B(10): p. 175-192, 1990 (20 ref, Eng).

The reproduction allocation of *P. coronopus* was examined in 57 populations from Ireland; it was found to vary from 14 percent to 64 percent and was both habitat-correlated. Other measured characteristics, e.g. seed output, number of flowers/plant, etc., followed similar trends. There was a non-linear positive correlation between percentage reproductive allocation and total plant dry weight. Seed output (number of seeds/units leaf area) in the rest of the genus has been shown to vary from annuals to perennials. Comparison with Irish *P. coronopus* populations suggests that on the north and west coasts and in rock cervice habitats the species may be perennial in contrast to populations from the east and south coasts and non-rock cervice sites. The conclusion is supported by casual field observation. M. Idris.

9302-0684 Sharma, B.M. (University of Ibadan, Ibadan, Nigeria) **Preliminary ecological studies on lithophytes and chasmophytes in south-west Nigeria.** *The Malaysian Forester*, v. 50(3&4): p. 391-402, 1987 (Recd. 1992, 26 ref, Eng).

Based on the importance value index, 19 species were organised into the *Euphorbia-Tridex-Commelina* community. Study was focused on dominant plants namely, love grass (*Eragrostis tenella*), Garden spurge (*Euphorbia hirta*), Guinea grass (*Panicum maximum*) and *Tridex procumbens*. Guinea grass was the tallest and contributed maximum biomass. The highest leaf area ration was for garden spurge. A high association index existed between garden spurge and *T. procumbens*, love grass and *T. procumbens*, guinea grass and *Boerhavia coccinea*. Seeds of love grass were highest and seed germination for the plants was maximum in continuous light at 20 degree C and when sown at surface of soil.

9302-0685 Singh, H. B., Dube, V.P. (Publications and Information Directorate, Dr Krishnan Marg, New Delhi 110008, India) **SEM studies of the leaves in the family Elaeocarpaceae.** *Phytomorphology*, v. 41(3&4): p. 257-265, 1991 (10 ref, Eng).

Variations in the cuticular oramentation, stomata and trichomes in twenty species of Elaeocarpaceae under SEM have been reported. Presence of grooved trichomes in *Elaeocarpus spp* has been reported to be useful in their identification.

9302-0686 Subudhi, H.N., Choudhury, B.P., Acharya, B.S. (PG Department of Botany, Utkal University, Bhubaneswar 751004, Orissa, India) **Some potential medicinal plants of Mahanadi delta in the state of Orissa.** *Journal of Economic & Taxonomic Botany*, v. 16(2): p. 479-487, 1992 (11 ref, Eng).

Local and botanical names of thirty six plant species, locality of collection, medicinal uses and their mode of use have been discussed.

Breeding & Genetics

9302-0687 Adzet, T., Ponz, R., Wolf, E.* , Schulte, E. (MCM Klosterfrau GmbH & Co., D(W)-5000 Koln, Federal Republic of Germany) **Genetic variability of the essential oil content of *Melissa officinalis*.** *Planta Medica*, v. 58(6): p. 558-561, 1992 (10 ref, Eng).

The essential oil content of various populations of *M. officinalis* cultivated under Mediterranean climatic conditions (Ebro-Delta, Spain) has been investigated during five years of selection and improvement of the genetic plant material. Starting with an essential oil content of 0.2-0.3 percent, a content of more than 0.5 percent was obtained as a result of genetic improvement. A weak negative correlation between the content of essential oil and phenotypical growth parameters such as the number of branches per plant and height was observed. No correlation between biomass production per plant and essential oil content could be found. By the method of hybridization of *M. officinalis* synthetics with a high yield of biomass and essential oil content were selected.

9302-0688 Avatar, R., Dashora, S.L., Sharma, R.K., Sharma, M.M. (Department of Genetic & Plant Breeding, SKN College of Agriculture, Jobner 362001, Rajasthan, India) **Analysis of genetic divergence in cumin (*Cuminum cyminum* L.).** *Indian Journal of Genetics & Plant Breeding*, v. 51(3): p. 289-291, 1991 (Recd. 1992; 3 ref, Eng).

Estimation of genetic divergence in 30 genotypes of *C. cyminum* based on 13 morphological traits has been reported. Evidence for and against geographical origins attributing to the genetic diversity has also been discussed. Grain yield was found to contribute maximum to the genetic diversity.

9302-0689 Bhandari, M.M., Gupta, G.S.(College of Agriculture, Rajasthan Agricultural University, Udaipur 313001, Rajasthan, India) **Association analysis in opium poppy (*Papaver somniferum* Linn.).** *International Journal of Tropical Agriculture*, v. 9(1): p. 42-44, 1991 (7 ref, Eng).

In the eighteen opium poppy genotypes, the genotypic coefficient of variation, heritability and genetic advance values were less than moderate for the latex yield, morphine percentage, and seed yield. The genotypic correlation coefficients of the latex yield were positive with the capsule volume and seed yield but negative with the capsule number. The morphine percentage was negatively correlated with the capsule breadth, capsule volume, capsule husk yield, and seed yield but positively with the plant height and capsule length. The capsule volume had the direct effects resulting in a correlation with the latex yield. The results suggested that the latex yield can be improved by selecting for the capsule volume and the reduced number of capsules per plant.

9302-0690 Mazza, G., Marshall, H.H.(Crops Utilisation Laboratory, Agriculture Canada Research Station Modern, Manitoba, Manitoba ROGJO, Canada) **Geraniol, linalool, thymol and carvacrol-rich essential oils from *Monarda* hybrids.** *Journal of Essential Oil Research*, v. 4(4): p. 395-400, 1992 (11 ref, Eng).

Monarda fistulosa var. *menthaefolia* was crossed with *M. didyma* and through a series of open pollination and selection cycles winter hardy disease-resistant hybrids were generated. The volatile concentrates obtained by nitrogen extraction contained high levels of cyclic terpenes including alpha-pinene and camphene. The volatile composition of oils extracted by hydrodistillation varied significantly among different hybrids. The oil of one hybrid contained geraniol (92 percent), oil of a second hybrid contained carvacrol (73.5 percent), 3rd hybrid contained linalool (67 percent), 4th hybrid contained thymol (31 percent) and 5th hybrid contained 1,8, cineole (22 percent)..

9302-0691 Meikle, R.D.(Rauscombe Lodge, Wootton Courtenay, Minehead, Somerset, UK) **British Willows: Some hybrids and some problems.** *Proceedings of The Royal Society of Edinburgh*, v. 98B: p. 13-20, 1992 (14 ref, Eng).

The paper deals with three problem areas in the taxonomy of British willows: i) The widespread occurrence in Perthshire and neighbouring countries of an intermediate between *Salix myrsinifolia* Salisp. and *S. phylicifolia*, apparently of hybrid origin, though growing in an area where typical *S. phylicifolia* has yet to be found; ii) the complex taxonomy of the British willows, where two common ag-

gregate species; *Salix cinerea* and *S. caprea*, are each represented by two segregates; a third *S. aurita* may also comprise more than one segregate, all three species interbred, as do the segregated within each aggregate; iii) the disputed identity of the Crack Willow *Salix fragilis*; and its nomenclatural implications. M. Idris.

Diseases & Pests

9302-0692 Balakrishna, P., Raman, A., Raman, K.J.(Entomology Research Institute, Loyola College, Madras 600034, TN, India) **On the morphometrics and dynamics of growth of the leaf galls of *Syzygium cumini* (L.) Skeds (Myrtaceae) induced by *Trioza jambolanae* Crawford (Insecta: Homoptera: Psylloidea).** *Phytomorphology*, v. 41(1&2): p. 109-113, 1991 (Recd. 1992; 9 ref, Eng).

Gall development on the leaves of *S. cumini*, induced by the psyllid has been analysed both in terms of morphogenesis and growth dynamics. Variance of the growth parameters has also been analysed.

9302-0693 Dutta, G.R., Roy, A.K.(Medicinal Plant Research Laboratory, University Department of Botany, Bhagalpur University, Bhagalpur 812 007, Bihar, India) **Mycobial deterioration in strychnine and brucine of *Strychnos nux-vomica* seeds.** *Indian Phytopathology*, v. 45(1): p. 77-80, 1992 (6 ref, Eng).

Two major indolic alkaloids, viz., strychnine (0.87 percent) and brucine (0.06 percent) contained in *Strychnos nux-vomica* seeds showed considerable change due to artificial inoculation with the spore suspensions of *Aspergillus flavus*, *A. niger* and *Penicillium citrinum* recorded as dominant fungal flora on the seeds during storage.

9302-0694 Gahukar, K.B., Patil, J.B.(Department of Plant Pathology, PKV, Akola 444 104, Maharashtra, India) **Identification of virus inciting mosaic in *Datura*.** *PKV Research Journal*, v. 15(1): p. 45-48, 1991 (Eng).

Two cap transmissible, aphid-borne viruses viz., DMMV and DIMV, injecting *Datura metel* and *D. innoxia* respectively were isolated for their identification. Both the isolates induced similar symptoms and had a restricted host range confined to the family *Solanaceae*. Based on strong positive serological relationship with *Datura* distortion mosaic virus (a Poty-Virus) antiserum, these were identified as the strain of this virus. NSL, New Delhi.

9302-0695 Kalra, A., Parameswaran, T.N., Ravindra, N.(Regional Centre, Central Institute of Medicinal and Aromatic Plants, Bangalore, Karnataka, India) **Fungicidal control of leaf blight of geranium (*Pelargonium***

graveolens). *Indian Journal of Agricultural Sciences*, v. 62(12): p. 844-847, 1992 (7 ref, Eng).

Four fungicides, namely benamyl, (0.20 kg/ha) captafol (0.96 kg/ha), carbendazin (0.20kg/ha) zineb (0.90 kg/ha) were applied 5 times at 15 day interval to control leaf blight disease of *P.graveolens*. Captafol proved to be the most effective in the control of disease and had no adverse effect on essential oil. A small but significant level of disease control was also obtained with all other fungicides tried.

9302-0696 Khan, R.M., Reddy, P.P.(Indian Institute of Horticultural Research, Hessaraghatta Lake, Bangalore 560089, Karnataka, India) **An association of *Pratylenchus brachyurus* with *Pogostemon cablin***. *Indian Journal of Nematology*, v. 20(1): p. 116-118 , 1990 (Recd. 1992; 7 ref, Eng).

Besides *P.brachyurus*, six other parasitic genera of nematodes were found to be associated in the rhizosphere of *P.cablin*. Patchaouli was found to be highly susceptible to *P.brachyurus*. Symptoms of nematode infestation have been reported.

9302-0697 Kumar, K., Misra, S., Sharma, A.K.(PG Department of Botany, Raj Rishi College, Alwar 301001, Rajasthan, India) **Anatomical deviations in MLO infected *Catharanthus roseus* (L.) Don**. *International Journal of Tropical Plant Diseases*, v. 9(2): p. 183-194, 1991 (17 ref, Eng).

Structural studies on the 'yellow' affected flowers of *C.roseus* showed that there is a close correlation between the degree of transformation and vascularisation of the flowers. Histological characters of transformed floral parts and anatomical features of the diseased plant parts were peculiar to plants affected by the yellows type diseases. The data revealed could be useful in diagnosis of yellows diseases of MLOs association. NSL, New Delhi.

9302-0698 Kumar, K., Misra, S., Sharma, A.K.(PG Department of Botany, Raj Rishi College, Alwar 301001, Rajasthan, India) **A fluorescence microscopic study of *Catharanthus roseus* (L.) Don associated with MLOs**. *International Journal of Tropical Plant Diseases*, v. 9(2): p. 237-244, 1991 (22 ref, Eng).

Thin section of fresh and diseased plants of *C.roseus* were examined under the fluorescent light microscope and compared with healthy plant. There was no fluorescence in the phloem siene tube of the healthy plant parts, the diseased parts showed mild to intense fluorescence depending upon the quantity of MLOs (Mycoplasma like organisms) present in the sieve tube and type of fluorochrome used. NSL, New Delhi.

9302-0699 Shukla, A.N.(Forest Pathology Division, Forest Research Institute, Dehra Dun, UP, India) **Seedling blight and root rot in neem (*Azadirachta indica* A. Juss.)**. *Indian journal of Forestry*, v. 15(3): p. 266-268 , 1992 (5 ref, Eng).

Seedlings of Neem raised at Satyanarayan Nursery, Dehra Dun, from seeds collected from ten different provenances were found to be attacked by *Fusarium solani*. The pathogen caused blackening of the hypocotyl, followed by root rot, wilting and mortality of the seedlings. Pathogenicity of the pathogen was tested with positive results and effects of different fungicides were studied on the growth of the colony in vitro. Ziram, shield, karathane and Bavistin were found to be most effective to control the pathogen.

9302-0700 Venkatesha, Gopinath, K.(Department of Studies in Zoology, University of Mysore, Manasagangotri, Mysore-570006, Karnataka, India) **The life-history and behaviour of *Amata passalis* (Fabricius) (Lepidoptera:Arctiidae), a defoliator of Sandalwood, *Santalum album* L.**. *Indian Journal of Forestry*, v.15(3): p. 229-233, 1992 (5 ref, Eng).

Life history including the developmental times for immatures, fecundity and longevity of adults and larval behaviour including feeding habits and cannibalism of a defoliator of *S.album* has been described.

9302-0701 Vijayaraghavan, M.R., Shah, R.(Department of Botany, University of Delhi, Delhi, India) **Seed predation and destruction by *Bruchidius* sp. in *Albizzia lebbek* (L.) Benth**. *Proc. National Conference on Forestry Research & Education in (INSA), New Delhi, 8-9 Oct. 1992*, (Eng).

In *A.lebbek*, the seed destruction by *Bruchidius* reduces the percentage fertility of an otherwise efficient plant. The majority of bruchids infest legume in the field and have long been recognised as serious pests of stored peas, beans etc. This study deals with seed destruction in *A.lebbek* by the infestation of *Bruchidius* spp and an involvement of parasite *Pteromalus sequester* (Pteromalidae) in the process of infestation.

9302-0702 Xiangcai, Z., Chen, Z., Chen, Z. , Zhang, S.S., Xudong, F.T.(Institute of Plant Protection, CAAS Beijing, China) **Study on the infection of MLO of jujube witches broom disease to periwinkle (*Vinca rosea*)**. *International Journal of Tropical Plant Diseases*, v. 9(2): p. 251-256, 1991 (4 ref, Eng).

The midrib of diseased plant *V.rosea* was ultrathin sectioned and observed under electron microscope. A lot of forms and sizes of the MLO pathogenetics were found within the sieve tube cells. Most of them distributed around

the edge of cell cytoplasm. The germ sizes were 269-636 x 231x515 nm. The thickness of the clear three layer structure unit membrane was 10 nm. The granulous ribose and nemaline karyoplasm inside of the MLO were very clear. The MLO pathogenetics were the MLO of jujube witches broom disease. NSL, New Delhi.

Physiology & Biochemistry

9302-0703 Anati, S.P., Obong, U.S.(Department of Biological Sciences, Microbiology Unit, University of Calabar, P.M.B 1115, Calabar, Nigeria) **Effect of fermentation on the nutrient status and on sometoxic components of *Icacina manni*.** *Plant Foods for Human Nutrition*, v. 42(3): p.219-224, 1992 (13 ref, Eng).

Chemical analysis of both unfermented and fermented products revealed an increase in protein, ash and fibre content while the lipid and carbohydrate content showed a decrease. The results indicated that fermentation resulted in protein enrichment of the fermented *I.manni* mash. Fermentation was also observed to cause a marked decrease in the level of some toxic components (oxalic acid, phytic acid and hydrocyanic acid) of the product. The possibility of incorporating *I.manni* among the edible starchy plant tubers is discussed.

9302-0704 Buttery, R.G., Ling, L.C.(US Department of Agriculture, Western Regional Research Center, Albany, California, USA) **Volatiles of tomato fruit and plant parts. Relationship and biogenesis (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco).** *Parfumerie und Kosmetik*, v. 73(10): p. 733, 1992 (Eng).

Volatiles of tomato (*Lycopersicon esculentum*) fruit, leaves, stem, flower and calyx have been compared. (Z)-3-hexenal, important to the flavor of sliced fresh tomato fruit also occurs in the other parts of the tomato plant, but only in the leaves it is rapidly isomerized to (E)-2-hexenal. Many of the important tomato flavor norisoprenoids are formed by glycoside-hydrolysis but other, particularly open chain forms, may be derived from oxidative degradation of carotenoids. The biogenesis of volatile nitrocompounds in tomatoes seems similar to that already proposed for night blooming flowers, except that no intermediate oxime has yet been found in tomatoes.

9302-0705 Cokelaere, M.M., Dangreau, H.D., Arnouts, S., Kuhn, E.R., Decuypere, E.M.P.(Interdisciplinary Research Center, Katholieke Universiteit Leuven, Campus Kortrijk, B-8500 Kortrijk, Belgium) **Influence of pure simmondsin in the food intake in rats.** *Journal of Agricultural and Food Chemistry*, v. 40(10): p. 1839-1842, 1992 (8 ref, Eng).

The jojoba plant (*Simmondsia chinensis*) and more specifically jojoba meal contain a series of molecules considered to be toxic, with simmondsin {2-(cyanomethylene)-3-hydroxy-4,5-dimethoxycyclohexyl beta-D-glucoside} as the most important. Indeed, the extracted and purified simmondsin from jojoba meal caused a food intake reduction in our experiments in adult rats. Taste is apparently not involved because the same response was seen with intragastric intubation as with oral administration. The food intake reduction is probably due to an inhibition of hunger, rather than to an enhancement of satiation. Simmondsin provokes weight reduction probably by an inhibition of food intake because the same weight reduction is seen with simmondsin administration as in paired animals. The action of simmondsin is observed within the first hour after oral administration and lasts for several hours. Simmondsin treated with beta-glucosidase and taken into the gastrointestinal tract seems to be more active than simmondsin itself with respect to inhibition of food intake.

9302-0706 Croteau, R., Gijzen, M., Lewinsohn, E., Savage, T.R. (Institute of Biological Chemistry, Washington State University, USA) **Conifer monoterpenes: Biochemistry and bark beetle chemical ecology (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992.** *Parfumerie und Kosmetik San Francisco Co*, v. 73(10): p. 728, 1992 (Eng).

A brief review of the key biological interactions mediated by oleoresin monoterpenes is followed by an overview of monoterpene biosynthesis employing constitutive oleoresinosis in lodgepole pine as a model. Wound-induced monoterpene biosynthesis in grand fir is described and the regulation of the process detailed. Possible strategies have been suggested for manipulating oleoresin production to improve conifer defences.

9302-0707 Deli, J., Matus, Z., Szabolcs, J.(Department of Medical Chemistry, Medical University of Pecs, Sziget ut12, H-7643 Pecs, Hungary) **Carotenoid composition in the fruits of black paprika (*Capsicum annum* variety *longum nigrum*) during ripening.** *Journal of Agricultural and Food Chemistry*, v. 40(11): p. 2072-2076, 1992 (15 ref, Eng).

The changes in the carotenoid pigments of black paprika *C.annuum* var. *longum nigrum* during maturation have been investigated quantitatively by means of a HPLC technique. In the chromatograms 58 peaks were detected, 34 carotenoids (92-95 percent) of the total carotenoid content) were completely or tentatively identified. The total carotenoid content of the ripe fruits was about 3.2 g/100g of dry weight, of which capsanthin constituted 42 percent, zeaxanthin 8 percent, cucurbitaxanthin A (3,6-epoxy-5,6-

dihydro-beta-beta-carotene-5,3'-diol) 6.6 percent, capsorubin 3.2 percent, and beta-carotene 7 percent. The remainder was composed of capsanthin 5,6-epoxide, capsanthin 3,6-epoxide (3,6-epoxy-5,3'-dihydroxy-5,6-dihydro-beta,k-caroten-6'-one), karpoxanthin, violaxanthin, antheraxanthin, zeaxanthin, beta-carytoxanthin, lutein, and several cis isomers and furanoid oxides. During ripening, and increase in capsanthin and, to a lesser extent, an increase in carotenoids with k and oxabicyclo 2.2.1 end groups were observed.

9302-0708 Endre, S., Suda, S., Takayama, h., Aimi, N., Shin-ichiro, S., Stockigt, J. (Lehrstuhl für Pharmazeutische Biologie der Johannes Gutenberg-Universität Mainz, Institut für Pharmazie, Staudinger Weg 5, D(W)-6500 Mainz, Federal Republic of Germany) **Isolation, identification, and chemical synthesis of 6alpha-hydroxyraumacline: A novel alkaloid from cultivated Rauwolfia serpentina cells.** *Planta Medica*, v. 58(5): p. 410-412, 1992 (13 ref, Eng).

From *R. serpentina* cells cultivated in the presence of ajmaline the new indole alkaloid, 6alpha-hydroxyraumacline (1), was isolated. This alkaloid also occurs in significant amounts in the nutrition medium. A simple chemical synthesis of 1 was developed starting from ajmaline.

9302-0709 Gbolade, A.A., Lockword, G.B. (Department of pharmacognosy, Obafemi AWO/OWO University, Ife, Ife, Nigeria) **Some factors affecting productivity of *Allium cepa* L. callus cultures.** *Journal of Essential Oil Research*, v. 4(4): p. 381-385, 1992 (19 ref, Eng).

Flavor production in onion static cultures during the growth cycle and following hormonal and precursor manipulations was investigated. The amount of flavor pyruvate detected in a typical culture cycle remained fairly constant. alpha-Naphtalene acetic acid stimulated production of higher levels of pyruvate in root differentiated cultures. The inclusion of a primary precursor in the culture media produced a slight improvement in flavour synthesis.

9302-0710 Herbert, R.B. (School of Chemistry, University of Leeds, Leeds LS29JT, UK) **The biosynthesis of plant alkaloids and nitrogenous microbial metabolites.** *Natural Product Reports*, v. 9(6): p. 507-529, 1992 (137 ref, Eng).

Biosynthesis of plant alkaloids viz., pyrrolidine, piperidine and pyrrolizidine alkaloids, isoquinoline alkaloids, terpenoid indole alkaloids, Teleocidins and ergot alkaloids, acridone alkaloids, have been covered in this review. The data were collected from the literature published between the period Aug 1989 and Dec. 1990.

9302-0711 Hertog, M.G.L., Hollman, R.C.H., Katan, M.B. (DLO State Institute for Quality Control of Agricultural Products, Bornesesteeg 45, NL-6708 PD, Wageningen, The Netherlands) **Content of potentially anticarcinogenic flavonoids of 28 vegetables and 9 fruits commonly consumed in the Netherlands.** *Journal of Agricultural and Food Chemistry*, v. 40(12): p. 2379-2383, 1992 (23 ref, Eng).

The content of the potentially anticarcinogenic flavonoids quercetin, kaempferol, myricetin, apigenin and luteolin of 28 vegetables and 9 fruits were determined. Quercetin levels in the edible plants of most vegetables were generally below 10 mg/kg except for onions (284-486 mg/kg), kale (110 mg/kg) broccoli (30 mg/kg), French beans (32-45 mg/kg) and slicing beans (28-30 mg/kg) and turnip tops (31-64 mg/kg). In most fruits the quercetin content averaged 15 mg/kg. The content of myricetin, luteolin and apigenin was below the level of detection. These collective data will provide a base for an epidemiological evaluation of possible anticarcinogenic effects of flavonoids.

9302-0712 Ide, T., Murata, M., Moriuchi, H. (Laboratory of Nutrition and Biochemistry, National Food Research Institute, Ministry of Agriculture, Forestry and Fisheries, Tsukuba, 305, Japan) **Microsomal triacylglycerol synthesis and diacylglycerol concentration in the liver of rats fed with soybean and egg yolk phospholipids.** *Bioscience, Biotechnology and Biochemistry*, v. 56(5): p. 732-735, 1992 (23 ref, Eng).

Diets containing 10 percent soybean oil, soybean phospholipid and egg yolk phospholipid decreased rat liver microsomal diacylglycerol acyltransferase activity, when measured with an endogenous diacylglycerol substrate relative to that in rats fed with a low fat-diet. The extent of decrease was more prominent with two kinds of phospholipids compared to soybean oil. Dietary phospholipids reduced the microsomal concentration of diacylglycerol to a value less than one third that in animals fed with a low fat diet. Soybean oil also decreased this parameter. Soybean phospholipids were more effective in reducing triglycerides concentration in the liver.

9302-0713 Idouraine, A., Sathe, S.K., Weber, C.W. (Department of Nutrition and Food Science, University of Arizona, Tucson, Arizona 85721, USA) **Biological evaluation of flour and protein extract of tepary bean (*Phaseolus acutifolius*).** *Journal of Agricultural and Food Chemistry*, v. 40(10): p. 1856-1859, 1992 (31 ref, Eng).

Raw, cooked, or autoclaved tepary flour (TF) and protein extract (PE) were tested for their nutritive value using mice and analyzed for their trypsin inhibitor activity (TIA), hemagglutinating activity (HA), and phytic acid

(PA). Both raw and 20-min-autoclaved TF or PE, when included in the diets, were deadly to mice. Raw TF and PE had high TIA, HA and PA contents. Soaking and cooking tepary beans for 20 min improved PER (0.97) and protein digestibility (83.54 percent). Autoclaving samples for 40 min showed lower digestibility (41-59 percent) but weight gain and PER not significantly different (P) from those of cooked beans. Sixty-minute autoclaving caused a significant depressing effect on feed intake, weight gain, and PER. TIA and HA seemed not to be the only toxic factors in tepary beans. Processing caused no significant change in PA. Soaking and cooking tepary seeds appeared to be more efficient in eliminating toxicity and leading to better growth performance than autoclaving.

9302-0714 Ismail, M.R., Awang, M. (Department of Agronomy and Horticulture, Universiti Pertanian Malaysia, 43400 UPM Serdang, Selangor Darul Ehsan, Malaysia) **Growth and physiological changes of *Averrhoa carambola* as influenced by water availability.** *Pertanika*, v. 15(1): p. 1-7, 1992 (18 ref, Eng, Mal).

To study the effect of water stress two experiments were conducted. The first one indicated a high correlation between soil water availability and a reduction in plant vegetative growth in *A. carambola*. In the second experiment, there was a significant correlation between leaf water potential and a reduction in stomatal conductance, transpiration, rate and photosynthesis rate. The inhibition of photosynthesis rate was only apparent when leaf water potential was reduced to 0.85 MPa. The relationship between physiological characteristics and vegetative growth is discussed.

9302-0715 Kitta, K., Hagiwara, Y., Shibamoto, T. (Department of Environmental Toxicity, University of California, Davis, California 95616, USA) **Antioxidative activity of an isoflavonoid, 2"-O-glycosylisovitexin isolated from green barley leaves.** *Journal of Agricultural and Food Chemistry*, v. 40(10): p. 1843-1845, 1992 (10 ref, Eng).

A flavonoid, 2"-O-glycosylisovitexin (2"-O-GIV), with antioxidative activity was isolated from young green barley leaves. Antioxidative activity of 2"-O-GIV was determined by using gas chromatography to measure amounts of malonaldehyde (MA) formed from squalene and ethyl linoleate upon UV irradiation or with Fenton's reagent. 2"-O-GIV suppressed the formation of MA from squalene upon oxidation with Fenton's reagent 32 percent at the level of 150 micro M/75 micro L of squalene. 2"-O-GIV decreased MA formation from ethyl linoleate upon UV irradiation to 40 percent at pH 7.4; 2"-O-GIV (100 micro M) decreased MA formation from ethyl linoleate (10 micro L) with Fenton's reagent to 59 percent and 10 percent at pH 3.5 and 7.4, respectively. 2"-O-GIV showed antioxidative

activities almost equal to that of alpha-tocopherol in all of the experiments.

9302-0716 Kobayashi, A., Yano, M., Kobota, K. (Department of Food Science and Nutrition, Ochanomizu University, Japan) **Formation of some tea volatiles.** (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 728, 1992 (Eng).

Some volatiles important to tea flavour have been reviewed. Many alcohols which play an important role in tea flavour are formed during the manufacturing process. Glycoside precursors of tea aroma were separated and identified in the hotwater extract of green tea (non fermented tea) and fresh tea leaves. (Z)-3-Hexenol glucoside is accumulated as a tea aroma precursor.

9302-0717 Kowalski, J., Strzelecka, H. (Katedra i Zaklad Farmakognozy, Instytut Nauki o Leku Akademia Medyczna w Warszawie, ul. Banacha 1, 02-097 Warszawa, Polska) **The investigation of some metabolites of methyl 1-/Butylcarbamy/-2-Benzimidazole carbamate as a stimulating factor increasing the biosynthesis of lanatoside C in *Digitalis lanata* Ehrh, leaves.** *Herba Polonica*, v. 37(2): p. 79-84, 1992 (9 ref, Eng, Pol).

Four benzimidazole derivatives show stimulating effect on biosynthesis of lanatoside C in *D. lanata* plants cultivated in field experiments. All substances: methyl 1-/butylcarbamy/-2-benzimidazole carbamate, 2-methylbenzimidazole carbamate (carbendazim, MBC), 2-aminobenzimidazole (2-AB), and benzimidazole were used as seed preparation, or as water suspension or solution for spraying the seedlings. All the substances stimulated the biosynthesis and caused an increase of lanatoside C content in the leaves more than 50 percent. The best stimulating effect was observed using the pickled seeds with 2-AB (increase about 105 percent), and with methyl 1-/butylcarbamy/-2-benzimidazole carbamate (increase about 80-90 percent). Two other substances-carbendazim and benzimidazole caused the slight increase of lanatoside C (increase about 50-67 percent) in the leaves collected in September. The results of the investigation suggested that the stimulating effect on biosynthesis lanatoside C in *D. lanata* depends on benzimidazole structure in the investigated compounds.

9302-0718 Lin Qin-Ying, Huang Can-can, Huang Shou-ying, Huang Jia-ning, Lan, N., Li Qing-Hong, Wang Bai-Hua, Yan, Si-Xu (Biochemistry Division, Xiamen University, Xiamen 361005, China) **Biological effects of steady DC magnetic field on the *Actinidia*.** *Biochimica et Sinica Biophysica*, v. 24(3): p. 253-258, 1992 (14 ref, Eng).

Actinidin was obtained from the fruits of *A.chinensis* and spectrum analysis and biological activity assay were carried out. The changes of differential spectra and relative fluorescence intensities showed that some variations in the conformation of actinidin occurred but no obvious inactivation of the enzyme was observed. The changes of the spectra were correlated with the intensity of magnetic field and the exposure time. The results also showed that a biological hysteresis effect arose from the exposure in a magnetic field.

9302-0719 Lin, G.D., Griffin, W.J.(Department of Pharmacy, University of Queensland, Queensland, Australia 4072) **Scopolamine content of a *Duboisia* hybrid in callus cultures.** *Phytochemistry*, v. 31(12): p. 4151-4153, 1992 (14 ref, Eng).

Scopolamine levels in a *D.leichhardtii*-*D.myoporoides* hybrid were determined by radioimmuno-assay and gas liquid chromatography in explants, callus and at various stages of plant regeneration. Scopolamine could not be detected in undifferentiated callus or differentiated shoots. Scopolamine only occurred in cultures which had developed roots. After 16 weeks, regenerated plants contained scopolamine at a level comparable with that in seedlings of a similar age. The scopolamine content of regenerated field-grown plants had scopolamine levels similar to conventionally vegetatively-propagated hybrid plants, except that littorine was the second major alkaloid, rather than hyoscyamine.

9302-0720 Moumou, Y., Trotin, F., Vasseur, J., Guyon, R., Dubois, J., Pinkas, M., Vermeersch, G.(Laboratoire de Physiologie et Morphogenese Vegetales, Universite des Sciences et Techniques de Lille-Flandres Artois, F-59655 Villeneuve d'Ascq Cedex, France) **Procyanidin production by *Fagopyrum esculentum* callus culture.** *Planta Medica*, v. 58(6): p. 516-519, 1992 (16 ref, Eng).

F.esculentum callus cultures grown on B5 medium synthesize procyanidins B2 (0.6-1.8 mg/g dry wt) and B2-3'-O-gallate (3.5-6.0 mg/g dry wt.). Sucrose is a better source than other carbohydrates and moderate concentrations (3-4 percent) stimulate both growth and procyanidin synthesis. While darkness was not a limiting factor, light induced faster growth and increased procyanidin contents. Treatment with gallic acid strongly stimulated the procyanidin B2-3'-O-gallate production, but drastically inhibited growth, leading to a two-step-culture experiment combining convenient growth and increased galloylated dimer synthesis (up to 45 mg/g dry wt.).

9302-0721 Muller, M.J., Zenk, M.H.(Lehrstuhl für Pharmazeutische Biologie, Universität München, D(W)-8000 München 2, Federal Republic of Germany) **The norcoclaurine pathway is operative in berberine**

biosynthesis in *Coptis japonica*. *Planta Medica*, v. 58(6): p. 524-527, 1992 (16 ref, Eng).

The commercially used cell suspension culture of *C.japonica* incorporates beta-¹³C tyrosine into both halves of the berberine molecule (isoquinoline and benzyl portion) while L-{¹³C-18O} DOPA only labels the isoquinoline portion of this molecule. This labelling pattern indicates that different C6-C2 units derived from tyrosine form this molecule. This result and the incorporation of (S)-{¹³C-1} norcoclaurine into berberine demonstrates that the biosynthesis of protoberberine alkaloids in *Coptis* involves the norcoclaurine but not the norlaudanosoline pathway.

9302-0722 Nandi, R.P.(Directorate of Cinchona and Other Medicinal Plants, Government of West Bengal, Mungpoo 734313, Darjeeling, WB, India) **Improvement on some commercially cultivated medicinal crops grown in West Bengal hills.** *International Seminar-Traditional Medicine, Calcutta*, 7-9 November, 1992, p. 71-73, 1992 (Eng).

Biosynthesis of the secondary metabolites of medicinal plants is controlled by environmental influences. Experimental studies have been conducted on the effect of environmental factors (altitude, light, treatment with growth hormones) and biochemical parameters on following medicinal plants in West Bengal hills: *Cinchona*, *Cephaelis*, *Atropa*, *Hyoscyamus*, *Rauwolfia*, *Catharanthus*, *Datura*, *Digitalis*, *Dioscorea*. (Abstr. No. IL 12A).

9302-0723 Neera, S., Arakawa, N., Ishimaru, K. (Department of Applied Biological Sciences, Faculty of Agriculture, Saga University, 1 Honjo, Saga 840, Japan) **Tannin production in *Sapium sebiferum* callus cultures.** *Phytochemistry*, v. 31(12): p. 4143-4192, 1992 (25 ref, Eng).

The effects of ammonium nitrate, some amino acids (glutamine, glycine and serine) and casein hydrolysate on the growth and tannin production of *S.sebiferum* callus grown in the light (16hr photoperiod) or dark were determined. A large amount of geraniin was produced in callus cultured on Murashige-Skoog medium without ammonium nitrate. The addition of amino acids with some combinations of 2,4-dichlorophenoxyacetic acid and benzyladenine (BA) to the medium increased the production of geraniin. Addition of casein hydrolysate with BA and kinetin enhanced geraniin production, especially in the light.

9302-0724 Nose, M., Fujimoto, T., Takeda, T., Nishibe, S., Ogiwara, Y.(Department of Pharmacognosy, Faculty of Pharmaceutical Sciences, Nagoya City University, 3-1, Tanabe-dori, Mizuho-ku, Nagaya 467, Japan) **Structural transformation of lignan compounds in rat gastrointes-**

tinal tract. *Planta Medica*, v. 58(6): p. 520-523, 1992 (7 ref, Eng).

Quantitative analysis of lignans and their metabolites was carried out by HPLC from the seeds of *Arctium lappa* and *Carthamus tinctorius*. Both lignans were stable in rat gastric juice and arctiin was rapidly transformed to arctigenin in rat large intestinal flora, followed by conversion to the major metabolite, 2-(3",4"-dihydroxybenzyl)-3-(3',4'-dimethoxybenzyl)-butyrolactone. On the other hand, tracheloside also decreased dependently with time and was converted to trachelogenin and its major metabolite, 2-(3",4"-dihydroxybenzyl)-3-(3'4'-dimethoxybenzyl)-2-hydroxybutyrolactone. These experiments suggest that in the course of metabolism of lignans, firstly a cleavage of the glycosidic bond occurred and then demethylation of the phenolic methoxy group in the alimentary tract followed.

9302-0725 Okutomi, T., Nishizawa, T., Inagawa, H., Takano, T., Morikawa, A., Soma, G.I., Mizuno, D. (Biotechnology Research Center, Teikyo University, Nogawa, Miyamae-ku, Kawasaki 216, Japan) **Homeostasis as regulated by activated macrophage. VII. Suppression of serum cholesterol level by LPSw (a lipopolysaccharide from wheat flour) in WHHL (watanabe heritable hyperlipidemic) rabbit.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1268-1270, 1992 (19 ref, Eng).

The serum cholesterol level of the animal decreased by the addition of LPSw to a lipoprotein from wheat (*Triticum aestivum*) to drinking water. Following cessation of the addition of LPSw to the drinking water, the cholesterol level was decreased for 30 to 40 d and then gradually elevated. The serum level of apolipoprotein B, which is a constituent of apolipoprotein of low density lipoprotein (LDL), also decreased in accord with serum cholesterol at a nearly coincident rate. Conversely, the level of apolipoprotein A-I, which is a constituent of apolipoprotein of high density lipoprotein (HDL), did not change, nor did HDL-cholesterol. Furthermore, the atherosclerosis risk factor, expressed as the ratio of apolipoprotein B to apolipoprotein A-I, was decreased by LPSw administration.

9302-0726 Perez, A.G., Rios, J.J., Sanz, C., Olias, J.M. (UEI Fisiologia y Tecnologia Post-recoleccion, Instituto de la Grasa y sus Derivados, CSIC, Apdo 1078, 41012 Sevilla, Spain) **Aroma components and free amino acids in strawberry variety Chandler during ripening.** *Journal of Agricultural and Food Chemistry*, v. 40(11): p. 2232-2235, 1992 (32 ref, Eng).

Aroma components and free amino acids of strawberry *Fragaria ananassa* x *Duchesne* var. *Chandler* were studied at different ripening stages. Ethyl esters were the major volatile compounds in all ripening stages studied, ethyl butanoate and ethyl hexanoate being the two main esters identified in fully ripe berries. Asparagine, glutamine, and alanine were found to be the most prominent free amino acids in the HPLC profile. A comparison of ethyl ester concentration and alanine contents during Chandler ripening shows that, from 41 to 46 days after blooming, ester biosynthesis increased about 3-fold while alanine levels decreased from 16.7 to 1.6 mg/100g.

9302-0727 Sakurai, H., Nikaido, T., Ohmoto, T.*, Ikeya, Y., Mitsuhashi, H. (School of Pharmaceutical Science, Toho University, Funabashi, Chiba 274, Japan) **Inhibitors of adenosine 3',5'-cyclic monophosphate phosphodiesterase from Schisandra chinensis and the structure activity relationship of lignans.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1191-1195, 1992 (12 ref, Eng).

the structure activity relationship was studied in analogous lignans from *S. chinensis* and their derivatives. These compounds were tested for cyclic adenosine 3',5'-monophosphate (cAMP) phosphodiesterase inhibition. An inhibitor, nordihydroguaiaretic acid, was isolated from this plant, and a derivative, nordihydroguaiaretic acid tetramethyl ether were examined using molecular mechanics involving three-dimensional modeling and minimization of the structure using the MM2PP program. As a result, it was found that the structure of nordihydroguaiaretic acid tetramethyl ether and papaverine (positive control) shared a similar low energy conformation. This fact suggested that these compounds inhibited cAMP phosphodiesterase by a similar mechanism.

9302-0728 Santhosh Kumari, K.S., Devi, K.S. (Department of Biochemistry, University of Kerala, Karivattom, Kerala, India) **Effect of some Ayurvedic drugs on lipid metabolism in DOCA/salt administered diabetic rabbits.** *Indian Medicine*, v. 4(3): p. 11-15, 1992 (21 ref, Eng).

Treatment with Nisakathakathi Kashayam (NK) and Rasnairandadi Kashayam (RK) and combination of two drugs showed hypocholesterolemia by increasing the hepatic degradation and excretion of cholesterol to bile salts. HMG CoA reductase rate limiting enzyme in cholesterol synthesis is returned to near normal condition. Increased lipolytic activity in liver was aorta of diabetic hypertensive rabbits treated with NK, RK and their mixture is associated with decrease in the accumulation of triglycerides in these tissues. Combined drugs reduced hypercholesterolemia, hypertriglyceridemia and hyperlipidemia in diabetic hypertensive rabbits.

9302-0729 Sharma, B.C. (PG Department of Botany, Bareilly College, Bareilly 243005, UP, India) **Cellulolytic and pectolytic enzyme production by *Alternaria alternata* causing leaf spot of poppy.** *Geobios*, v. 19(5): p. 237-238, 1992 (11 ref, Eng).

In vitro production of ex, PG, DP and PP enzymes of *A.alternata* isolated from *Papaver somniferum* infected with leaf spot disease has been reported. PG enzyme showed maximum enzyme production (94.33 percent) followed by pp (66.66 percent), DP (46.85 percent) and ex (39.87 percent) enzyme. Both cellulolytic and pectolytic enzymes were found to act synergistically and produced necrosis of parenchymatous tissues. Necrotic areas in the leaf appeared in the form of leaf spot.

9302-0730 Shin, S.H., Kim, Y.S., Kim, S.H. (College of Pharmacy, Duksung Women's University, Seoul 132-714, Korea) **Production of anthraquinone derivatives by *Rubia cordifolia* var. *pratensis* transformed by *Agrobacterium* spp.** *Korean Journal of Pharmacognosy*, v. 23(3): p. 137-141, 1992 (15 ref, Kor, Eng).

The cells of *R.cordifolia* var. *pratensis* were transformed by *A.tumefaciens* strain 11157. Surface-sterilized young leaves and stems of the plants were cocultivated with bacterial suspensions. Crown galls induced from stems were cultured with variation of culturing conditions and compared with untransformed cells. The growth rates and production of anthraquinone pigments of cells were remarkably improved by transformation. Furthermore, hairy roots were induced by inoculation or cocultivation with *A.rhizogenes* strains.

9302-0731 Shirke, D.R., Sharangpani, P.R. (Department of Botany, University of Poona, Pune, 411007, Maharashtra, India) **Histochemical studies on anthers of *Cassia surattensis* Burn.** *Biologia Indica*, v. 2(1&2): p. 57-60, 1991 (12 ref, Eng).

Histochemical localizations of polysaccharides, nucleic acid, proteins and lipids have been done in anthers of *C.surattensis* at successive growth stages. Tapetum, pollen mother cells, and pollen grains are found to be rich in the metabolites. NSL, New Delhi.

9302-0732 Soudamini, K.K., Unnikrishnan, M.C., Soni, K.B., Kuttan (Amla Cancer Research Center, Amla Nagar, Trichur 680553, Kerala, India) **Inhibition of lipid peroxidation and cholesterol levels in mice by curcumin.** *Indian Journal of Physiology and Pharmacology*, v. 36(4): p. 239-243, 1992 (19 ref, Eng).

Effect of oral administration of curcumin (diferuloyl methane) in lipid peroxidation in various organs of mice viz., liver, lung, kidney and brain was studied in control

animals, as well as, in mice administered CCl₄, paraquat and cyclophosphamide. Oral administration of curcumin significantly lowered the increased peroxidation of lipids in these tissues produced by these chemicals. Also, it lowered significantly serum and tissue cholesterol levels in these animals showing that curcumin helps in conditions associated with peroxide induced injury. NSL, New Delhi.

9302-0733 Tirillini, B., Tosi, B. (Institute of Botany and Botanical Garden, University of Urbino via Bramante 28, 61029, Urbino, Italy) **Presence of alpha-pinene in plant callus cultures of *Smyrniurn perfoliatum* L.** *Journal of Essential Oil Research*, v. 4(4): p. 431-432, 1992 (4 ref, Eng).

The monoterpene hydrocarbon alpha-pinene was found to be present in the headspace callus cultures of floral axis of *S.perfoliatum*. This compound was produced in the neoforming secretory structures.

9302-0734 Trumble, J.T., Millar, J.G., Ott, D.E., Carson, W.C. (Department of Entomology, University of California, Riverside, California 92521, USA) **Seasonal patterns and pesticidal effects on the phototoxic linear furanocoumarins in celery, *Apium graveolens* L.** *Journal of Agricultural and Food Chemistry*, v. 40(9): p. 1501-1506, 1992 (22 ref, Eng).

Seasonal trends and pesticidal effects on the phototoxic linear furanocoumarins in petioles and leaves of celery (*A.graveolens*) were documented. Total linear furanocoumarins in petioles from untreated plants (range=0.34-1.84 micro g/g of fresh weight) did not reach levels known to cause contact dermatitis in either 1989 or 1990. In leaf samples, total linear furanocoumarin concentrations in untreated plants at harvest (1989, 2.95 micro g/g; 1990, 5.90 micro g/g) were low but exceeded levels known to produce dermatitis for at least 6 weeks in 1990 (maximum=15.85 micro g/g). Similar concentrations were recorded only once in 1989 (11.52 micro g/g). Bergapten showed the highest seasonal and weekly concentration in leaves and petioles during both years, followed by xanthotoxin and then psoralen. The concentration by bergapten in petioles declined significantly as plants matured. Concentrations of furanocoumarins in the leaves did not correlate with concentrations in the petioles in either year. In general, pesticides had relatively little effect on linear furanocoumarin induction.

9302-0735 van Beek, T.A., Lelyveld, G.P. (Department of Organic Chemistry, Phytochemical Section, Agricultural University, Dreijenplein 8, NL-6703 HB Wageningen, The Netherlands) **Concentration of ginkgolides and bilobalide in *Ginkgo biloba* leaves in relation to the time**

of year. *Planta Medica*, v. 58(5): p. 413-416, 1992 (13 ref, Eng).

The concentrations of ginkgolides A,B and C and bilobalide were determined in the leaves of 3 different Dutch *G.biloba* trees from late spring unit late autumn 1990. The concentration versus harvest time plots were roughly the same for all the compounds in each of the 3 trees. Concentration was lowest in spring and then gradually increased until a maximum in late summer or early autumn was reached. Thereafter the concentration declined until leaf fall. The difference in ginkgolide and bilobalide content between the 3 trees was very high. For ginkgolide B, the pharmacologically most potent compound, the maximum concentration was less than 3,68 and 204 ppm respectively. Possible reasons for these differences and consequences for phytotherapy are discussed briefly.

9302-0736 Yasni, S., Imaizumi, K., Sugano, M. (Laboratory of Nutrition Chemistry, Department of Food Science and Technology, School of Agriculture (40-09), Kyushu University, Fukuoka, 812, Japan) **Effects of an Indonesian, medicinal plant *Curcuma xanthorrhiza* Roxb., on the levels of serum glucose and triglyceride, fatty acid desaturation and bile acid excretion in Streptozotocin induced diabetic rats.** *Agricultural and Biological Chemistry*, v. 55(12): p. 3005-3010, 1991 (31 ref, Eng).

Streptozotocin-induced diabetic rats were fed on purified diets containing 5 percent of either cellulose as a control or four kinds of medicinal plants viz., *C.xanthorrhiza*, *Zingiber aromaticum*, *Parkia speciosa* and *Pithecellobium jiringa*, improved the diabetic symptoms and triglyceride in the serum. Also, reduction in the ratio of arachidate linoleate liver phospholipids were noticed. Composition of fecal bile acids were also modified.

9302-0737 Yokogoshi, H., Hayase, k., Yamazaki, J., Korke, K., Takahashi, S. (Laboratory of Nutritional Biochemistry, School of Food and Nutritional Sciences. The University of Shizuoka, Shizuota 22, Japan) **Effects of administration of an extract of TU-Chung leaf (*Eucommia ulmoides*, Oliver) on muscle protein synthesis in mice.** *Agricultural and Biological Chemistry*, v. 55(12): p. 3133-3134, 1991 (Recd. 1992, 9 ref, Eng).

Young adult male mice were administered with extracts of *E.ulmoides* for 4 weeks. Concentrations of RNA and protein in gastrocnemius muscle increased, indicating enhanced synthesis and degradation of muscle protein. DNA content did not show any change.

9302-0738 Yokozawa, T., Oura, H., Sakanaka, S., Kim, H. (Research Institute for Wakan-Yaku, Toyama Medical and Pharmaceutical University, Sugitani, Toyama 930-01,

Japan) **Effect of tannins in green tea on the urinary methylguanidine excretion in rats indicating a possible radical scavenging action.** *Bioscience, Biotechnology and Biochemistry*, v. 56(6): p. 896-899, 1992 (43 ref, Eng).

The hydroxyl radical scavenging action of green tea tannin given orally to rats with experimental renal failures was examined by using the urinary methyl guanidine (uremic toxin) excretion as an index. In rats given 2 mg of a green tea tannin mixture, the methyl guanidine excretion was significantly decreased or had a tendency to decrease. (-)-Epigallocatechin-3-O-gallate, the predominant component of green tea tannin mixture, effected the decrease in the urinary methylguanidine excretion in rats at a dose as low as 0.25 mg suggesting a hydroxy radical scavenging action.

9302-0739 Yue, S., Tiyan, L., Ma, B.R., Yang, X.L. (Department of Organic Chemistry, Zhangjia Kou Medical College, 075029, China) **Isolation and purification of polysaccharides AAPSI, AAPSI and AAPSI from the stem of *Actinidia arguta* (Sieb. et. Zucc.) Planch. and determination of their molar ratios.** *Acta Biochimica et Biophysica Sinica*, nv. 24(4): p. 327-332, 1992 (10 ref, Chi, Eng).

Three polysaccharides of *A.arguta* were isolated by precipitation and purified by column chromatography. Their molecular weights were 59500, 61500, and 69000 of AAPSI, AAPSI and AAPSI, respectively. AAPSI is composed of beta-linked D-xylose, L-arabinose, D-mannose, D-glucose D-galactose and an unknown sugar XI in the molar ratio of 2.80:1.79:0.02:2.09:1.84. AAPSI is composed of beta linked D-xylose, L-arabinose, D-mannose, D-glucose and an unknown sugar in the molar ratio of 6.03:5.21:0.46:1:7.03. AAPSI is composed of beta linked D-xylose, D-glucose, D-galactose and an unknown sugar XI in the molar ratio of 8.19:1:0.47:10.8.

Pharmacognosy

9302-0740 Raghunathan, A.N., Pillai, A.P.G., Sharma, J.M. (IPGT & R Boys Hostel, Palace Road, Jamnagar 361008, India) **Pharmacognostical studies on Paranti.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p.153, (Eng).

a drug named Paranti in sanskrit, botanically identified as *Ixora coccinea* has been widely used for various skin diseases like Balavisarpa, some kutshas mainly involved with Pitta vitiation etc. Besides this efficacy, Paranti has been considered as highly useful in cosmetic medicine. Its usage has been prescribed both internally as choorna, medicated ghrita as well as externally like taila abhxanga, kashaya parisheka etc. by the authors of some Ayurvedic

books of Kerala like Arogyakalpadrumna, Shasrayogam etc. A detailed pharmacognostical investigation aiming to establish its correct identity was undertaken Morphology of the plant and the detailed histology of the root which is considered to be the part of plant selected for the use were undertaken. Diagnostic features, chemical composition, properties and therapeutic usage are also included in the same.

9302-0741 Anand Kumar (Government College of Indian Medicine, Bangalore, Karnataka, India) **Selection of parts with time of collection of drugs for therapeutic use.** *Proceedings of National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992, p.7 (Eng).*

Importance and efficacy of different parts of a plant, time of collection and methods of selection have been discussed.

9302-0742 Deokule, S.S. (T.C. College, Baramati Dist., Pune, 413102, Maharashtra, India) **Pharmacognostic study of leaf of Vigna trilobata Linn.** *Biologica India, v. 2(1&2): p. 85-90, 1991 (12 ref, Eng).*

Pharmacognostic studies on leaves of *Vigna trilobata* have been carried out. Diagnostic features include rubiaceous stomata on both abaxial and adxial epidermis; stomatal index 11, 11-17.19; vein-islets number 13.25/sq mm area, vein-let termination number 10.25/sq mm area; palisade ratio 16.20/epidermal cell; simple non-glandular unicellular or multicellular trichomes mostly as veins. NSL, New Delhi.

9302-0743 Dutta, S.K. (Department of Dravyaguna, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, UP, India) **Standardisation of ayurvedic formulations.** *International Seminar Traditional Medicine, Calcutta, 7-9 November, p. 69-70, 1992 (Eng).*

Efficacy of medicines depends on their genuineness. Therefore, standardization of drugs is the most important problem in the field of Ayurveda. Asavas and Aristas are popular ayurvedic drugs. These were analysed for specific gravity, alcohol content, pH value, total solid content and sugar content. Ghrita and taila preparations were analysed for refractive index, acid value, iodine value and R.M. value. In addition, some physical and chemical studies were carried out to isolate some characteristic ingredients which may help in the standardization of formulations *Abst. No. IL 9A.*

9302-0744 Johri, R.K., Zutshi, U. (Regional Research Laboratory, Jammu-Tawi 180001, JK, India) **An Ayurvedic formulation 'Trikatu' and its constituents.** *Journal of Ethnopharmacology, v. 37(2): p. 85-91, 1992 (69 ref, Eng).*

'Trikatu' is an Ayurvedic preparation containing black pepper, long pepper and ginger, which is prescribed routinely for a variety of diseases as part of a multidrug prescription. These herbs along with piperine (alkaloid of peppers) have been shown to possess diverse biological activities in mammalian systems. A review is presented of these studies and it has been suggested that their use in the Indian system of medicine could be their bioavailability enhancing action on other medicaments.

9302-0745 Karnick, C.R. (WOCKHARDT Ltd., Chikalthana Industrial Estate, Jalgaon Road, Aurangabad 431001, Maharashtra, India) **Studies on standardisation of Ayurvedic crude drugs. series X-brahmy-Hydrocotyle asiatica Linn syn: Centella asiatica (Linn) Urban.** *Indian Medicine, v. 1(2): p. 21-23, 1989 (Recd. 1992, 3 ref, Eng).*

Brahmi *Centella asiatica syn. Hydrocotyle asiatica* useful in brain disorders, as an Ayurvedic medicine to improve appetite, voice, memory and to cure leucoderma, "Kapha" biliousness, enlargement of the spleen, insanity etc. Since the herb is used in herbal formulations correct identification is the need of time, therefore studies were conducted to compare fresh plant with dried market samples. The results are presented:

9302-0746 Katiyar, C.K., Vittal Babu, A., Narayana, D.B.A. (Dabur India Limited, 22, Site IV, Sahibabad 201010, Ghaziabad, UP, India) **Standardisation of Ayurvedic drugs: Problems, realities and rationale.** *International Seminar-Traditional Medicine, Calcutta 7-9 November, 1992, p. 69, (Eng).*

With the popularisation of Ayurveda, started the scarcity of raw materials for manufacturing of Ayurvedic drugs. The problem became more compounded with the establishment of more and more Ayurvedic Pharmacies. Recently global awakening and interest regarding Ayurveda has provided greater emphasis on standardisation of Ayurvedic drugs. The problems, realities and rationale of Ayurveda will be discussed. (Abstr. No. IL 8A).

9302-0747 Mukherjee, G.D. (Regional Research Institute, Ay, W.B.14, Jagannat Dulta Lane, Calcutta 700009, India) **Raw materials for Ayurvedic drugs.** *International Seminar Traditional Medicine, Calcutta, 7-9 November, 1992, p. 73, 1992 (Eng).*

Plant, animal and mineral products have been in use in medicine since time immemorial. In the present age Ayurvedic drugs constitute 50 percent plants, 40 percent animal and animal products and 10 percent minerals. Survey of 1000 market samples of crude drugs revealed that 65 percent of the drugs were spurious, 15 percent were sub-

standard and only 20 percent were original and suitable for use.

9302-0748 Pillai, C.R.S.(Government Ayurved College, Trivandrum, Kerala) **A critical study on an unidentified drug Rajani.** *Proceedings of National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992, p.5 (Eng).*

Rajani, a classical Ayurvedic drug prescribed for the treatment of Raktapittas Sotha, Prameha etc., has been described as a drug of separate identity with properties and uses.

9302-0749 Pushpalatha, K.(G,C,IM, Bangalore, Karnataka, India) **Methodology for the study of controversial drugs.** *Proceedings of the National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992 p. 8 (Eng).*

Reasons for availability of controversial drugs and adulterants with examples and the methods for their checking have been discussed.

9302-0750 Rama Murthy, A., Dubey, S.D.(Department of Dravyaguna, IMS, Banaras Hindu University, Varanasi, UP, India) **Methodology to study the controversial drugs.** *Proceedings of the National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992, p. 11 (Eng).*

Controversial and substitution drugs used in Dravyaguna, and the problems faced due to their presence have been discussed.

9302-0751 Ramakrishnamacharya, C., Sukumar, E. , Rao, R.B. (Department of Ayurveda, Captain Srinivasa Murti Drug Research Institute for Ayurveda, Arumbakkam, Madras. TN, India) **On the identity of Elavaluka.** *Proceedings of the National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992, p.10 (Eng).*

A controversial plant drug, 'Elavaluka', used in the Ayurvedic system of medicine is equated to *Prunus avium*, *P.cerasus*, *Gisekia pharnaceoides*, *Melothria maderaspatana*. Close affinity of the drug towards *Melothria maderaspatana*, with the help of anatomical characters has been reported.

9302-0752 Saraswathy, A., Susan, T., Girija, M., Sukumar, S.S. (Drug AStandardisation Research Unit (Siddha), Captain Srinivasa Murti Drug Research Institute for Ayurveda, Arumbakkam, Madras 600 106, India) **Standardisation of siddha medicines used in rheumatism.** *International Seminar-Traditional Medicine, 7-9 November 1992, p. 70, 1992 (ENG).*

Siddha system is the ancient Dravidian system of medicine presently practised predominantly in South India. Navauppumeluky and vatakesaritam are siddha medicines prescribed mainly for rheumatic diseases. The former is a herbo-mineral preparation and the latter a pure herbal formulation. The physico-chemical standards and thin layer chromatography of these two medicines are worked out which will help to identify the standard products. (Abstr. No. IL 10A).

9302-0753 Sharma, S., Ojha, P.(Department of Dravyaguna, Government Ayurvedic College, Patna, Bihar, India) **Controversy about Asvakarna.** *Proceeding of the National Workshop on Dravyaguna, Varanasi, UP, India, Feb. 17-19, 1992, p.9 (Eng).*

Pharmacognosital and botanical characters of Asvakarna and 'Bijak' being marketed in the name of 'Asava' have been discussed.

9302-0754 Vara Prasad, P.V., Joshi, V.K.(Department of Dravyaguna, IMS Banaras Hindu University, Varanasi, UP, India) **Pharmacognostical and pharmacological studies on Trikatu.** *Proceedings of the National Workshop on Dravyaguna Varanasi, UP, India, February 17-19, 1992, p. 11 (Eng).*

Pharmacognostical characters and pharmacological activity of 'Trikatu', a compound Ayurvedic formulation, consisting of three drugs have been discussed.

9302-0755 Vasanth, P.(Department of Dravyaguna, BRKR Government Ayurvedic College, Erragadda, Hyderabad, AP, India) **Role of collection time of Dravyas with special reference to therapeutic uses.** *Proceedings of the National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992, p. 10 (Eng).*

Variations in the therapeutic principles due to collection time, different parts of the plant and seasonal variations along with some collection guidelines have been discussed.

Clinical Studies

9302-0756 Banerjee, S., Bandyopadhyay, S.K., Mukherjee, P.K., Mukherjee, N.K., Chowdhury, Mukherjee, A.(Department of Pharmacology, Calcutta National Medical College, Calcutta, Wb, India) **Clinical studies on hypolipidemic and cardioprotective effects of some indigenous drugs.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India, v. December 5-8: p. 80, 1992 (Eng).*

Extracts of *Terminalia arjuna*, *Inula racemosa* and latex of *Commiphora mukul* exhibited hypolipidemic and cardioprotective activity in forty patients after four months

of therapy. Improvement in ECG recording was observed in 6 out of 10 patients of Angina.

9302-0757 Bao, J., Lou, J.G. (Research Laboratory of TCM, Second Affiliated Hospital of Zhejiang, Medical University, Hangzhou 310009, China) **Research on long-term changes and rules of TCM differential types CHD with TCM-WM treatment.** *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(5): p. 277-279, 1991 (6 ref, Chi, Eng).

64 cases with TCM differential types of CHD treated with TCM-WM in long term (as average of 10.5 years) were divided into four types according to deficiency of Yang (including weakness of Qi), deficiency of Yin, blood stasis and disorder of Qi and phlegm. Compared with pre-treatment 42 cases (65.62 percent) with TCM differential types showed improvement or no change in group I, II, while 22 cases (32.38 percent) with TCM differential type became aggravated or worse. Therefore, it is necessary to protect Yang-Qi and prevent and treat the complication of the CHD patients.

9302-0758 Batra, R. (ESIC New Delhi, India) **Pathophysiology of Tamaka Swasa (bronchial asthma) and selective administration of Somlata churna, Ras Sindur & Dhoompona.** *Sachitra Ayurved*, v. 44(5): p. 363-366, 1991 (Eng).

Ayurvedic concept of bronchial asthma has been discussed. Mode of action of *Ephedra girardiana*, Ras Sindur and *Datura stramonium* in patients of bronchial asthma has been outlined.

9302-0759 Bhattacharya, S.K. (Neuropharmacology Laboratory, Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India) **Evaluation of adaptogenic activity of some Indian medicinal plants.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November 1992*, p. 91-93, 1992 (

Adaptogenic activity was investigated in an Ayurvedic formulation of established Rasayanas viz., *Trasina* constituting, *Withania somnifera*, *Ocimum sanctum*, *Tinospora cordifolia*, *Picrorrhiza kurroa*, *Eclipta alba* and Shilajit. The results indicate that Rasayanas exhibit a similar profile as *Panax ginseng*, a standard adaptogen, but less toxic than ginseng. Hence Rasayanas find a place in modern therapy as adaptogens. (Abstr. No. IL 6C).

9302-0760 Biswas, T.K., Mukherjee, B., Maity, L.N., Marji, B. (Institute of Post-Graduate Education and Research in Ayurveda, 294/3/1 Acharya prafulla Chandra Road, Calcutta 700 009, WB, India) **Duodenitis: Effect of Katuki in comparison with famotidine.** *International*

Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992, p. 150, (Eng).

Duodenitis is a pre-ulcerogenic condition to the disease duodenal ulcer. In Ayurveda it is termed as Grahagata vranashetha. Katuki *Picrorrhiza kurroa* is an Indian indigenous plant that was used for the treatment of different diseases since 2500 B.C. The antiulcer activity of Katuki was evaluated both clinically and experimentally in respect to control and standard drug. Comparative discussion in the light of modern and Ayurvedic concepts were presented. (Abstr.No. p9.06).

9302-0761 Chandrapuria, V.P., Bhargava, M.K. (Surgery and Radiology, College of Vet. Sci. and A.H. Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur, MP, India) **Post-operative management in canines.** *Probe*, v. 32(1): p. 46-47, 1992 (5 ref, Eng).

Thirty five dogs of different breeds and age groups from 1 month to 10 years were administered Septilin syrup orally for three days prior to and for 10 days after operation. The dose schedule was 1 tablespoonful (tsf) b.i.d upto 5 kg, 1 tsf t.i.d for 5 to 10 kg, 2 tsf t.i.d. to 5 to 10 kg, 2 tsf b.i.d for 10-15 kg and 2 tsf t.i.d. for 15 to 25 kg body weight. No antibiotics were given during the pre-or post-operative observation period of 10 to 12 days, except dressing of site with antiseptic ointment. Out of the 35 dogs, 22 showed 'good' results (62.85 percent) with an uneventful healing of the site within 7 days in docking, CTVS, castration + CTVS, aural haematoma and tumour cases. 'Fair' response was seen in 10 animals (28.57 percent) and poor response in 3 animals which could have been due to a non-cooperative attitude and improper management of the animals during post-operative period.

9302-0762 Das, S. (State Ayurvedic Dispensary, Chupi, P.O. Chupi, Burdwan, West Bengal, India) **Effect of *Eclipta alba* on gastritis.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 147, (Eng).

Pulverised *E.alba* 12g. daily was given in three divided doses to the group of patients of gastritis for 45 days. The patients of hyperchlorhydria showed some total symptomatic relief by the treatment. The reduction of gastric acidity of this type of patients was statistically significant in every reading. The normalization or elevation of gastric acidity of hypochlorhydria patients was statistically significant in some readings although it was not significant in a good number of cases. Out of 25 cases, 52 percent evidenced excellently 20 percent good response and the rest (28 percent) showed failure to therapy. (Abstr. No. p.9.01).

9302-0763 De Santana, C.F., De Almeida, E.R., Dos Santos, E.R., Souza, L.A. (Departamento de Antibioticos,

Universidade Federal de Pernambuco, Recife, Pernambuco, 50739, Brasil) **Action of *Mentha crisper* hydroethanolic extract in patients bearing intestinal protozoan.** *Fitoterapia*, v. 63(5): p. 409-410, 1992 (8 ref, Eng).

The amoebicide and giardicide activity of the hydroethanolic extract of *M.crispa* leaves was tested in 122 patients of which 93 were bearers of *Entamoeba histolytica* and 29 of *Giardia lamblia*. The positive results were 91 percent in the *E.histolytica* cases and 68 percent in the *G.lamblia* cases, as evidenced by both the cystic and vegetative forms in the faeces of the patients.

9302-0764 Dwivedi, K.K., Singh, R.H.(Department of Kayachikitsa, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, India) **A study of geriatric patients and their Ayurvedic management.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 102, 1992 (Eng).

Ayurveda puts a considerable thought on the science of Gerontology including Rasayana therapy. Rasayana tantra is devoted to the study of aging and its prevention with the help of Rasayana therapy. Sarangdhara presents a scheme of loss of different biological factors during life as a function of aging. Aswagandha, Kapikachhu, Amalaki are some of the Rasayanas which prevent and treat different aspects of aging. Details one discussed . (Abstr. No. P7.04).

9302-0765 Dwivedi, M., Tewari, P.V.(Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, UP, India) **Dhatrityadi Yoga in obsetrics- Efficacy and cost.** *Sachitra Ayurved*, v. 44(5): p. 360-362, 1991 (Eng).

Dhatrityadi yoga (a composite herbal drug containing *Emblica officinalis*, *Asparagus* and *Nardostachys*) was given to 98 pregnant women and the results were compared with those obtained with Rdeplex,tab Ostocalcium and Promlon. Dhatrityadi yoga maintained the level of haemoglobin and serum protein upto optimum, complications during antenatal period were also minimized. Confinement was also safe and no untoward side effects were observed. The drug is as effective as modern medicine and is much cheaper.

9302-0766 Fujisawa, K.(First Department of Internal Medicine, Jikei University School of Medicine, Japan) **Interferon therapy in hepatitis C virus (HCV) induced chronic hepatitis. Clinical significance of pretreatment with glycyrrhizine.** *Tropical Gastroenterology*, v. 12(4): p. 171-179, 1991 (11 ref, Eng).

The therapeutic effect of interferon (IFN) as well as of stronger Neominophagen-C a derivative of glycyrrhizic acid (SNMC), the active constituent of which is glycyrrhizin

(a saponine from licorice, *Glycyrrhiza* spp has been tried in patients with chronic type C hepatitis. On the basis of observations made it is concluded that IFN is quite effective in the treatment of chronic type C hepatitis but its efficacy is limited in 60 percent of the patients. So combination therapy of INF and SNMC is a more promising antiviral therapy. NSL, New Delhi.

9302-0767 Ghosal, J., Roy, A., Ray, R.(Ashok Laboratory, 390B, Jodhpur Park, Calcutta 700068,India) **Influence of *Cephalandra indica*, Naud (Telakucha) on serum lipids and lipoproteins in the humans of different age groups.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November*, p. 110-111, 1992 (Eng).

The effect of oral administration of *C.indica*, (50-100 gms a day according to the age and body weight) along with normal diet for 4 months have been studied in 100 hyperlipaemic humans of 25-70 years age against 60 healthy male and female volunteers in the same age group. It was observed that the trial dosage of the above drug in crude powder from successfully lowered total cholesterol, low density lipoproteins and seum triglycerides, while simultaneously increasing the high density lipoproteins in the blood. Such effects are found to manifest from the vary first week of the administration of the above drug and are significant statistically (Abstr. No. p.7.16).

9302-0768 Guo, X.C.(Department of Internal Medicine, Rui-Jin Hospital, Shanghai Second Medical University, Shanghai 200025, China) **Relationship of coronary heart disease based on TCM syndrome differentiation and prostaglandin, blood platelet function, protein C.** *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(5): p. 263-264, 1991 (3 ref, Chi, Eng).

The relationship between 68 cases of thromboxane B2(TXB2), 6-keto-prostaglandin F1a (6-K-PGF1a), beta-thromboglobulin (BTG), platelet factor 4(PF4), protein C antigen (PC:Ag), total-proteins (T-Ps) with coronary heart disease (CHD) based on TCM syndrome differentiation were studied. 45 cases of male, 23 cases of female, they were divided into 30 cases of blood stasis group and 38 cases of Qi syndrome group. 39 healthy subjects of same age and sex were chosen as the control group. The results were as follows: The TXB2, BTG, PF4 in CHD were higher than those of cotnrol, 6-K-PGF1a was lower (P less than 0.05, P less than 0.01) respectively. The TXB2 in blood stasis was significantly higher than that of Qi syndrome while the 6-K-PGF1a in Qi syndrome was significantly lower than that of blood stasis syndrome (P less 0.01). The PC:Ag, T-Ps in CHD were higher than those of the control. The PC:Ag in blood stasis was lower and was higher in Qi syndrome..

9302-0769 Gupta, M.C., Sood, O.P., Mishra, S.K. (PG Department of Medicine, SN Medical College, Agra, UP, India) **Clinical trial of Ginkgo biloba extract in cases with dementia.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November 1992*, p. 121-122, (Eng).

This study was done with the objective to demonstrate the clinical role of *G. biloba* extract in cases with dementia using randomised, double blind, comparative study design. Forty six patients of either sex and above 48 years of age with a major symptom of progressive deterioration of memory for six months were included in the study. Either *G. biloba* extract 40 mg tablet or placebo tablet was given 3 times daily for 8 weeks to 22 and 24 patients respectively on a randomised, double blind fashion. Overall valuation of therapy showed very good to good response in 54.5 percent patients, moderate in 45.5 percent whereas in placebo group 8.3 percent showed good response and 91.7 percent patients remained unchanged. Thus, it can be concluded that *G. biloba* extract has excellent efficacy in improving dementia symptoms and in improving quality of life of geriatric patients. (Abstr. No. P8.03).

9302-0770 Hasik, J., Rajewska, J., Klineciewicz, H., Hryniewiecki, L., Kotlinska, B., Samolinska, K., Zachwieja, A. (Klinika Gastroenterologii Instytutu Chorob Wewnętrznych Akademii Medycznej im. K. Marcinkowskiego w Poznaniu, ul. Przybyszewskiego 49, 60 355 Poznań, Poland) **Clinical evaluation of Sylicynar in patients with chronic pancreatitis.** *Herba Polonica*, v. 37(3-4): p. 157-161, 1991 (6 ref, Eng, Pol).

Clinical analysis of Sylicynar (obtained from *Silybum marianum*) was carried out on 15 chronic patients of pancreatitis. A positive response on lipolytic pancreatic function was observed.

9302-0771 Home, C., Roy, L., Roy, A. (Marcil Laboratories, Calcutta 700 001 India) **Management of Khalitya (Alopecia areata) by Ayurvedic approach.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 124, 1992 (Eng).

Management of *Alopecia areata* (loss of scalp hair) requires systematic approach. Both males and females aged between 10 to 45 years with varied etiology were included. In all the cases (i) Neem Oil (*Melia azadirachta*) nasal drops, (ii) Shampoo containing Ritha (*Spindus trifoliatu*s), Shikakai (*Origanum vulgare*), Amalaki (*Phyllanthus emblica*), Batchhal (*Ficus bengalensis*), (iii) Hair Oil containing Kuch (*Abrus precatorius*), Kesut (*Eclipta alba*), Jaba (*Hibiscus rosa-sinensis*), Aparajita (*Clitoria ternatea* in sesame oil, (vi) saline gargle and (v) Systemic oral aqueous solution of Kalmegh, *Andrographis paniculata*, Katuki (*Picrorhiza kurroa*), Sonapata (*Sena indica*), Mauri

(*Foeniculum vulgare*), Ajowan (*Carum copticum ptychotis*), were used. It was observed that in 80 percent of the cases after 6 months of treatment original colour, contour and texture reappeared. (Abstr. No. P 8.05).

9302-0772 Jain, N.C., Singal, R.P., Shahi, S.R. (Medical College and Hospital, Patiala, Punjab, India) **Role of Liv. 52 and Geriforte as general metabolic tonics in drug addicts.** *Probe*, v. 32(1): p. 32-35, 1992 (5 ref, Eng).

The effects of treatment with Liv 52 and Geriforte tablets in the dose of 2 tabs t.i.d of each for two months and then 1 tab t.i.d. of each for next 3 months, was studied in subjects who became dependent on various addictive substances. There was overall improvement in all the symptoms except occasional restlessness in chronic smokers, of whom 3 out of 35 gave up smoking. There was 95 percent relief in smokers' cough in 3 cases. Forty eight cases of alcohol dependence had similar general symptoms and recovered well in spite of continued alcohol consumption though some reported reduced intake. Opium and other narcotic addicts showed some improvement but depression was not affected.

9302-0773 Karnick, C.R. (Wockhardt Ltd., Aurangabad 431210, Maharashtra, India) **A new Ayurvedic drug-Manix (Narsimha churna) for oligospermia and Femix (Laxmana) for childless females.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992* (Eng).

In Bhaisaijya-rathavali Vajikarandikara reference of Narsimha churna (Manix) has been traced. It contains a combination of 11 herbal drugs, in specific proportions. This formulation is effective for development of Sukra in oligospermia. Clinical data presented showed promising results. In Charak Sharir VIII. 18 & 19, there is reference of Laxmana- useful in the development of Beej (Ova) in females. A positive increase in endometrial prostaglandin concentration and increase in neutral -1-oxosteroids (17mg/kg/24 hr. in female uterus) was noticed.

9302-0774 Kastura, H.S., Deshpande, S.L. (Director of Indian Systems of Medicine and Homoeopathy, Gujarat State, Gandhinagar, Gujarat, India) **Role of ayurvedic treatment in the cases of poliomyelitis.** *Indian Medicine*, v. 2(1): p. 10-16, 1990 (2 ref, Eng).

The authors have reported about their achievement in five hundred cases. It is found that administration of Rasaushadhies like Brihat chintamani rasa, Brihat vatchintamani rasa along with pannchakarma massage with herbal oil (Mahanarayan taila), plastering with guggulu etc have shown encouraging results.

9302-0775 Kawatra, A., Bhat, C.M., Arora, A. (Department of Foods and Nutrition, Haryana Agricultural University,

Hisar 125 004, Haryana, India) **Effect of isabgol husk supplementation on trace minerals (Zn,Cu,Mn) levels in adolescent girls.** *Plant Foods for Human Nutrition*, v. 42(3): p. 225-230, 1992 (18 ref, Eng).

The study was conducted on eleven healthy non-anaemic adolescent girls of 16 to 18 years of age. Balance studies were conducted in two trials of three weeks each on low and high fibre diets. High fibre diet contained 25g Isabgol *Plantago ovata* husk in addition to low fibre diet. The mean diet and nutrient intakes of the subjects were approximately the same during both trials. Addition of Isabgol husk to low fibre diet significantly ($p<0.05$) increased faecal excretion of zinc, copper and manganese and lowered their apparent retention. The serum levels of these trace minerals decreased significantly ($p<0.05$). Thus the high level of Isabgol has undesirable effect on trace minerals.

9302-0776 Kshirsagar, N.A., Davi, S.S., Joshi, M.V., Sharma, S.S., Sant, H.M., Shah, P.U., Chandra, R.S. (Department of Pharmacology, Seth G.S. Medical College and KEM Hospital, Parel, Bombay 400012, Maharashtra, India) **Phenytoin and Ayurvedic preparation: Clinically important interaction in epileptic patients.** *Journal of Association of Physicians of India (Letter to Editor)*, v. 40(5): p. 354-355, 1992 (Eng).

An important interaction between phenytoin and an Ayurvedic drug Shankhpushpi has been reported. The interaction was initially observed in two patients and was subsequently confirmed in maximal electric shock induced seizure in rats. NSL, New Delhi.

9302-0777 Kushwaha, H.K., Sharma, K.P. (Shalya Department, National Institute of Ayurveda, Jaipur, Rajasthan, India) **Clinical evaluation of Shankhpushpi syrup in the management of depressive illness.** *Sachitra Ayurved*, v. 45(1): p. 45-50, 1992 (9 ref, Eng).

Patients of depressive illness treated with Shankhpushpi syrup @25 ml twice daily, showed positive effective antidepressant activity.

9302-0778 Ma, Q.H., Ju, Y.L., Zhang, Z.L. (Suzhou Guang-Ji Hospital, Jiangsu, 215008, China) **The immunological study of inefficiency schizophrenics with deficiency syndrome treated with Xin Shen Ling.** *Chinese Journal of Integrated and Traditional Medicine*, v. 11(4): p. 215-218, 1991 (4 ref, Eng, Chi).

This paper reports 30 cases of chronic schizophrenics with deficiency syndrome who had chronically taken many sorts of neuroleptic medications and other therapies to be ineffective. In order to regulate proportion and function to immune cell, the 30 patients were given to take im-

munomodulating herbs (Xin Shen Ling, XSL) during 6 weeks, while their 7 immunological markers were detected before treatment (BT) and after treatment (AT). The results showed that 5 immunological markers (PHA, CIC, T, N and D cell) of BT were significantly different as compared with that of AT (P). However, the 5 immunological markers (PHA, CIC, and T, N and D cell) of AT were not significantly different as compared with that of the control group ($P<0.05$). The brief psychosis rating scale (BPRS) and nurses observation scale for inpatient evaluation (NOSIE) were used as evaluating changes of clinical symptoms BT and AT. The results showed that BPRS and NOSIE of BT were significantly different as compared with that of AT (P). The clinical efficacious rate was 67 percent. The results for near 3 years which had a relapse of 5 cases of 20 cases be discharged. It seemed that XSL may be one of the preventive relapse agent for these patients.

9302-0779 Mansharamani, G.G., Sood, O.P., Mishra, S.K. (Department of Medicine, LNJP Hospital & MA Medical College, New Delhi, India) **Double-blind, randomised, placebo-controlled trial on Ginkgo biloba extract.** *International Seminar-Traditional Medicine, Calcutta*, 7-9 November, 1992, p. 122-123, 1992 (Eng).

Sixty adult patients of either sex, aged 50 years or above, having cerebral insufficiency, were enrolled in this study. Fifty patients completed the study and 10 patients were lost to follow up. Twenty five patients took *G. biloba* extract tablet 40 mg three times a day for 8 weeks and the other 25 took placebo on a randomised, double-blind fashion. The trial gave positive results. (Abstr. No. P8'04).

9302-0780 Misra, G., Nigam, S.K., Saimbi, C.S. (National Botanical Research Institute, Lucknow, UP, India) **Plant in dental care.** *Proceedings of the National Workshop on Dravyaguna, Varanasi, UP, India*, February 17-19, 1992, p. 10 (Eng).

Efficacy of *Cissus quadrangularis*, *Zanthoxylum alatum* and *Azadirachta indica* against common ailments of teeth has been discussed.

9302-0781 Mohan Krishna, A., Ojha, D. (Department of Kayachikitsa, IMS, Banaras Hindu University, Varanasi, UP, India) **Clinical and physico-chemical analysis of Kutaja oil.** *Proceedings of the National Workshop on Dravyaguna, Varanasi, UP, India*, February 17-19, 1992, p. 11 (Eng).

Efficacy of kutaja oil in the treatment of 34 patients of skin disease particularly psoriasis has been reported.

9302-0782 Mukhopadhyay, B. (39, Nagarjuna Doctors Hostel, I.M.S., B.H.U., Varanasi 221005, UP, India) **Role of**

Mahatriphaladyaghrita in the management of glaucoma. *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992, p.120, (Eng).*

The object of present study is to find out a new Ayurvedic drug which would relieve the raised intraocular pressure without any complication and thus one compound medicine named Mahatriphaladyaghrita picked up for cases of primary open angle glaucoma showed significant results. (Abstr.No. p.8.01).

9302-0783 Nisterwar, K.(Department of Dravyaguna, Government Ayurvedic College, Vijayawada 520002, AP, India) **Clinical pharmacological study of Abhayadi Modaka- a herbal purgative.** *Indian Medicine, v. 2(1): p. 7-9, 1990 (6 ref, Eng).*

"Abhayadi Modaka" a herbal purgative containing haritaki, trikatu, amalaki, vidanga, twak etc was tried in healthy and patient volunteers and the observations regarding onset of action, dosage, adverse effects and duration of action have been reported.

9302-0784 Paranjape, M.H., Paranjape, M.M.(Astang Ayurved Mahavidyalaya, 2062 Sadashiv Peth, Pune 411030, Maharashtra, India) **Use of Azadirachta indica (Neem oil) suppositories as contraceptive.** *Proceedings of International Conference on Fertility Regulation, Nov. 5-8, 1992, Bombay, India, (Eng).*

Neem oil suppositories were subjected to precoitus stage trials. The on-going clinical trials suggested that the neem oil was not an impact to the vaginal mucosa or to the male genitiles. It was also non nactotio and non-carcinogenic. The probable mode of action of these suppositories of neem oil was appeared to be spermatostatic.

9302-0785 Patnaik, S.K., Narayana, M.V., Krishna Rao, P., Kanhekar, L.I., Raina, V.K., Biswas, G., Ashok Kumar(Regional Filariasis Training and Research Centre, Rajamundry, AP, India) **Filopin efficacy in the treatment of Lymphatic filariasis.** *Journal of Communicable Diseases, v. 23(4): p. 278-279, 1991 (Eng).*

Filopin, an Ayurvedic preparation contain *Hydrocotyl asiatica* (125 mg), *Hemidesmus indicus* (100 mg), *Eclipta erecta* (75 mg), *Curcuma longa* (50 mg) and *Piper nigrum* (30 mg) and Filopin oil used topically contain *Hydrocotyl asiatica*, *Calotropis gigantea*, *Eclipta erecta*, *Datura fistuosa*, *Brassica nigra*, *Curcuma longa*, *Pongamia glabra* and *Melia azadirachta* in sesamum oil. One capsule twice a day of Filopin was given to patients after meals for 50 days and Filopin oil was locally applied. Results indicate that after six months of followup, in none of the acute filariasis cases and in only 9.7 percent of the chronic patients, any reduction of the size of swelling was observed. It is indi-

cated that the drug has neither any microfilaricidal action nor does it help in the reduction of lymphoedema and size of elephantiasis in acute and chronic cases of filariasis. NSL, New Delhi.

9302-0786 Prabha, S.(Department of Gynaecology & Obstetrics, Ayurvedic & Unani Tibbia College & Hospital, Karol Bagh, New Delhi-110005, India) **Management and treatment of Asrigdar by Shalmalipushpa churna.** *Proceedings 3rd International Ayurvedic Conference, Bali (Indonesia) 3-6 September 1992, (Eng).*

Shalmali pushpa churna (powder of *Salmalia malabarica* flowers) has been tried on the 76 cases of Asrigdar (dysfunctional uterine bleeding) in Tibbia College Hospital. All these cases were divided into three groups, according to Ayurvedic method of clinical study, viz., Vata, Pitta and Kapha. Fifty six cases got cured. The dose of drug administered was fixed at 12 grams per day in two divided portions for the period of one week and in some cases it was extended to 3-4 weeks. No side effects of drugs were observed.

9302-0787 Rai, D.K., Rai, M., Sharma, R.K.(National Ayurveda Institute, Jaipur 302001; Rajasthan, India) **Measles: Cause and treatment.** *Sachitra Ayurved, v. 45(3): p. 189-192, 1992 (Hin).*

Treatment of measles with single and composite herbal drugs has been described.

9302-0788 Rao, J.N., Prasad, G.C.(Department of Shaya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, UP, India) **Clinical studies on specially devised Kshara-Sutra prepared from Snuhi Ksheer extract in the management of Fistula in ano.** *International Seminar-Traditional Medicine, Calcutta 7-9 November, 1992, p. 155, (Eng).*

Fistula in ano is a very troublesome disease since ancient days. The age old technique of Kshara-Sutra in the treatment of fistula in ano has been introduced. The efficacy of Kshara-Sutra has been studied in thousands of cases since 1964, and proved successful for fistula in ano. A latest development has been done in Kshara-Sutra by preparing the Kshara-Sutra with Snuhi Ksheer extract. The extract contains triterpenes which is said to be the active principles of Kshara-Sutra. Details of the clinical studies conducted using modified Kshara-Sutra are presented (Abstr. No. p.9.12).

9302-0789 Rao, X.Q., Yu, R.C., Zhang, J.H.(Department of Oncology, Beijing Hospital of TCM, Beijing, 100010, China) **Observation of Sheng Xue Tang on immunological functions of cancer patients with Spleen-deficiency**

syndrome. *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(4): p. 218-222, 1991 (4 ref, Chi, Eng).

242 cases of cancer patients with Spleen-deficiency syndrome have been studied. It has been found that some immune indexes such as phagocytic activities of macrophages, lymphocytic transformation rate, E-rosette forming rate, Th-cell in T cell subgroup, the NK cell cytotoxicity and combining ability, of cancer patients with Spleen-deficiency syndrome were lower than those of normal donor (P less 0.001 or 0.002). After the patients were treated with Sheng Xue Tang (SXT), the immune indexes above mentioned have been increased significantly. These results suggest that SXT can improve the cell-mediated immune function, therefore, it can strengthen the anticancer ability of the patient, prolong the survival period of some patients..

9302-0790 Rawal, J.H.. **Clinical study of Pippalyadi Yoga as contraceptive method.** *Sachitra Ayurved*, v. 44(5): p. 353-359, 1991 (D30, Eng).

Pippalyadi Yoga, a composite drug containing *Piper longum*, *Embelia ribes* and borax in equal amount, was investigated in 254 women covering 4694 cycles. Oral administration of drug in a dose of 1g/day gave very good results. Drug failure was observed only in 4 women. Pregnancy due to drug omission was found in 26 women. Minor side effects were observed in 17 cases. Fertility appears to be normal after discontinuation of the drug.

9302-0791 Reddy, K.P., Nagalakshmi, V., Gogte, V., Rao, T.S. (Clinical Research Unit (Ay.) Charminar, Hyderabad, AP, India) **Management of Amalpitta (hyperacidity) with compound drugs of Kapardaka Bhasma and Avipattikara churna.** *Sachitra Ayurved*, v. 44(3): p. 193-197, 1991 (Eng).

Avipattikara churna (3g) (an indigenous composite herbal drug) and Kapardaka Bhasma (500 mg) were given twice daily just after meals to 28 patients of hyperacidity. Highly encouraging results were obtained with 45 percent patients showing good response and 55 percent patients showing fair response.

9302-0792 Roy, A.S., Acharya, S.B., De, A.K., Debnath, P.K. (Department of Kayachikitsa (Internal Medicine), JB Roy State Ayurvedic Medical College & Hospitals, Calcutta, WB, India) **Mountain medicine: Effect of Aswagandha (*Withania somnifera*) on the changes of psychophysiological status of trainee mountaineers by altitude gain.** *International Seminar-Traditional Medicine, Calcutta 7-9 November 1992*, p. 161, (Eng).

Trainee mountaineers revealed altered psychophysiological status with altitude gain (14,000 ft). In

this study Aswagandha (*W.somnifera*) was administered 500 mg twice daily to a group of mountaineers throughout the 29 days tenure which included 17,000 ft altitude gain through trekking and 6 days training in that height including climb to 21,000 ft and then descending. At different altitudes both psychological and physiological parameters were repeated for assessment. Altered behavioural pattern was improved by Aswagandha in sleep pattern, responsiveness, alertness, loneliness, state of awareness along with physical capabilities. (Abstr. No. P. 9.21).

9302-0793 Roy, C.K., Ojha, J.K., Bajpai, H.S. (Department of Dravyaguna, State Ayurvedic College, Handia, Allahabad, UP, India) **Systematic review of the herbal management of Prameha.** *Sachitra Ayurved*, v. 45(3): p. 208-213, 1992 (3 ref, Eng).

Medicinal plants mentioned in Charak, Sushruta and Vagbhatta for the management of Diabetes Mellitus have been reviewed.

9302-0794 Samanta, S.K. (J.B. Roy State Ayurvedic Medical College & Hospitals, Calcutta 700001, WB, India) **Modulation of male infertility by ayurvedic drugs.** *International Seminar -Traditional Medicine, Calcutta, 7-9 November*, p. 127, 1992 (Eng).

Fifty eligible infertile couples with the males suffering from oligospermia, necrospermia, less motile and unhealthy sperm were included. Satavari *Asperagus racemosus*, Talmool *Curculigo orchoides* and Kokilashma *Asteracantha longifolia* 8-10g in divided doses were administered orally with milk and sugar for 3 months. Appreciable change in viability was observed after 1 month of treatment including some change in morphological character of the sperm. In the 2nd month the semen analysis showed considerable improvement in number and motility and immaturity reduced. After 3 months of treatment normospermia developed in 80 percent of patients which is congenial to pregnancy development. It was observed that after 1 year treatment 15 of the 50 patients got babies (Abstr. No P.8.08).

9302-0795 Shareff, M.A., Lateef, A., Parveen, S., Taiyab, M., Hussain, S.J. (Clinical Screening Unit, Regional Research Institute of Unani Medicine, Aligarh 200 001, UP, India) **Clinical trial of Sudab (*Ruta graveolens* Linn.) in the cases of Bars (Vitiligo).** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 129, 1992 (Eng).

Sudab (*R.graveolens*) has been used in the treatment of bars (Vitiligo) and other skin disease by Unani physicians and claimed to be very effective. An essential oil, Reu oil has been obtained which is said to be very effective in Bars

(Vitiligo). Present study shows the effect of sudab (*R.graveolens*) on 115 selected cases of Bars irrespective of age and sex, chronicity and different colouration of vitiligenous patches. Micro-pulverized powder of sudab was administered orally in the dosage of 1.5g thrice daily after meals. The drug was also given for topical application after mixing it with vinegar in 1:2 ratio. The affected part was exposed to Sunrays for 10 to 15 minutes daily in the morning hours. Response of Sudab was found very encouraging. (Abstr. No. P 8.10).

9302-0796 Shariq Ali Khan, Latif, A., Khan, L.A., Khan, P., Parveen, S., Taiyab, M., Abbas, A.(R.R.I.U.M. Ajmal Khan Tibbya College Hospital (New Block), A.M.U., Aligarh 202001, UP, India) **The therapeutic response of Unani drug in the already treated and untreated cases of maturity onset Diabetes Mellitus- a comparative study.** *International Seminar-Traditional Medicine, Calcutta 7-9 November*, p. 101-102, 1992 (Eng).

The present communication envisages the comparative therapeutic evaluation of a coded Unani drug ZS-9 in the maturity onset diabetes mellitus cases who had already taken oral hypoglycemics/insulin from other agencies (but not responded successfully) and those who did not consume any drug for the disease earlier. The major parameters adopted were the clinical signs and symptoms, quantitative estimation of glucose level in the blood (fasting as well as post-prandial) and qualitative analysis of urine. It was concluded that the drug ZS-9 showed better therapeutic response in the untreated cases in comparison to the already treated maturity onset type cases of diabetes mellitus. in the latter cases therapeutic response of the drug was quite volatile.(Abstr. No. 7.03).

9302-0797 Sharma, P., Sharma, N., Mukherji, P., Moza, B.K.(Himani Limited, Calcutta, WB, India) **Extending horizons of Chyawanprash Rasayan- Chayawanprash Plus.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November 1992*, p. 138, (Eng).

Chyawanprash Rasayan is a medicament, described in Charaka Samhita and other treatises, used for delaying ageing effects and other ailments. The present study relates to the improvement of its formulations as Chyawanprash Plus by addition of mineral Bhasmas, memory boosters, cardiogenic herbs, dry fruits, apple juice, etc. A detailed survey reveals that such an improvised formulation, produced under modern concepts of quality control and GMP, not only acts as a Rasayan but also as a Vajeekarna. Twenty volunteers and 20 patients were selected for this study and beneficial results were observed in reduction of cholesterol, increase of blood cells, mitigation of constipation, increase of general vitality, increase of appetite and

body weight in underweight patients. These details at different doses are discussed. (Abstr. No. P 8.22).

9302-0798 Sharma, P.P., Sharma, J.M.(IPGT & R, Gujarat Ayurved University, Jamnagar 361008, Gujarat, India) **Therapeutic evaluation of Calotropis spp. in the management of bronchial asthma- a clinical study.** *International Seminar -Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 86-87, 1992 (Eng).

Two species of Calotropis viz., *C.procera* and *C.gigantia* have been recognised as the botanical source of Arka. It has been recommended for the treatment of bronchial asthma by the ancient Ayurvedic science as well as modern science also. But so far no scientific and systematic study have been carried out for antiasthmatic property of the Arka pushpa. Two kinds of Arka are available. Therefore, both the drugs have been selected for the present study in their clinical efficacy on the bronchial asthma. Accordingly, the powders of dried flowers of both species of plants were tried on 75 patients of bronchial asthma which showed encouraging results. (Abstr. No. IL 15B).

9302-0799 Sharma, R.N.(2311 West Guru Angad Nagar, Gurudwara Road, Delhi 110012, India) (**Contribution of Ayurveda towards management of bronchial asthma**). *Sachitra Ayurved*, v. 44(5): p. 349-352, 1991 (Hin).

Treatment of bronchial asthma with herbal and herbo-mineral drugs has been described. *Curcuma longa*, incinerated rock salt+borax with *Piper betle* leaves, *Citrus colocynthis*, ashes of *Hordeum vulgare*, *Zingiber officinale* and preparations of *Adhatoda vasica* and *Datura* have been found to be effective in the patients of bronchial asthma.

9302-0800 Sharma, S., Merwaha, D.C., Gupta, R.R.(Department of Surgery, Indira Gandhi Medical College, Shimla, HP, India) **A correlative study of urinary tract infection and calculogenesis in the Shimla region: A control study.** *Probe*, v. 32(1): p. 20-23, 1992 (8 ref, Eng).

Forty patients having stones up to 1 cm. in diameter were given Cystone (Himalaya), 2 tabs, t.i.d for six weeks to three months. Sixteen patients were from the positive culture group, nine having *E.coli* infection. Radiological examination, urine culture and microscopic examination were repeated after six weeks. Reduction in stone size was observed in 9 patients and all the patients were found to be free from pus cells. Cystone was found to be a good alternative to surgery for urinary stones less than 5mm in diameter and also in the prophylaxis of recurrent urinary tract infections.

9302-0801 Sharma, S.S., Dubey, K., Agrawal, S.S. (Department of Pharmacology, College of Pharmacy, New Delhi 110017, India) **Antihepatotoxic activity of Terminalia arjuna.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, P. P2, (Eng).

Alcoholic extract of *T.arjuna* stem bark exhibited antihepatotoxic activity.

9302-0802 Shaw, B.P. (Department of Kayachikitsa, Institute of Post-Graduate Education & Research in Ayurveda, Calcutta 700009, WB, India) **Role of Hedychium spicatum and Kankasawa with Rasamanikya on tropical pulmonary eosinophilia.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p.162, (Eng).

Fifteen patients of tropical pulmonary eosinophilia were treated with Kapur kachari *H.spicatum* and 10 patients of this disease were treated with the combination of the two drugs, viz. Kankasava and Rasamanikya. The results were assessed in terms of clinical improvement and decrease in total absolute eosinophil count carried out before and after the four weeks of the treatments. The results of the treatment showed that the single drug Kapur kachari and the combined drug, Kankasava plus Rasamanikya reduced the total absolute eosinophil count to more than 50 percent but when compared with each other, Kapur kachari seems to be a better drug. In addition to this, patients showed marked clinical improvement also. (Abstr. No. P.9.22).

9302-0803 Shi, H.M., Dai, R.H., Wang, S.Y. (Cardiovascular Department, Shijiazhuang District Hospital, Shijiazhuang, China) **Primary Research on the clinical significance of ventricular late potentials (VLPs), and the impact of mexiletine, lidocaine and Astragalus membranaceus on VLPs.** *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(5): p. 280-281, 1991 (8 ref, Eng, Chi).

The body surface signal-averaged electrocardiogram (SAECG) was recorded on 316 cardiac patients, 84 percent (266 patients) of whom were also taken 24-hour Holter ECG. VLPs were detected positively in 6.1 percent, 25 percent, 25.7 percent, 14.3 percent and 5.5 percent of patients with angina pectoris, myocardial infarction, myocarditis, cardiomyopathy and arrhythmia of unknown origin respectively, and the patients with complex ventricular arrhythmia had more VLPs positive determination definitely (P.5). The specificity of VLPs in the prediction of complex ventricular arrhythmia was 80 percent, and the positive predictive accuracy was 70-80 percent. 5, 5 and 10 patients with VLPs were treated with Mexiletini Hydrochloridum, Lidocaini Hydrochloridum and Injection of *Astragalus membranaceus* respectively. As

a result of treatment, the transfer of VLPs positive to negative was unsuccessful, but only the intervention of *A.membranaceus*. Injection made the duration of VLPs shortened significantly 39.8+3.3 ms versus 44.5+5.9 ms.

9302-0804 Singh, D.C., Ojha, J.K.* (Department of Dravyaguna, IMS, BH4, Varanasi 5, UP, India) **Primary study of effect of Manjistha and Kanchanara on diabetic-microangiopathy with special reference to diabetic leg ulcer.** *Sachitra Ayurved*, v. 44(2): p. 126-128, 1991 (Eng, San).

Oral administration of Ghanasatva of Manjistha (*Rubia cordifolia*) root and Kanchanara (*Bauhinia variegata*) bark to the patients of diabetic microangiopathy and washing of the ulcers with Manjistha decoction gave satisfactory results in newly formed ulcers. With old ulcers mixed therapy with pentoxifylline, Manjistha and Kanchanara gave better results.

9302-0805 Singh, R.C., Srivastava, R.K., Sharma, M.K. (Department of Pharmacology, GSVM Medical College, Kanpur, UP, India) **Septilin as an adjuvant to antibiotic therapy in chronic seminal tract infections.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India, December 5-8, 1992*, p.100 (Eng).

Herbal formulation Septilin, when used as an adjuvant to antibiotic therapy in chronic seminal-tract infections, was found to quickly eradicate seminal-tract infection and promote better semen quality.

9302-0806 Singh, R.K., Gambhir, S.S. (Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, UP, India) **An anti-inflammatory evaluation of some traditional medicinal plants.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. A10, (Eng).

A common herb, *Solanum indicum* was found to clinically benefit in asthma and bronchitis, abundant herb *Saccharum munja* showed novel kidney protective action. Inflammation being central in tissue destruction and development of symptom complexes, evaluation of dose related antiinflammatory activity of select medicinal plant was performed. The results of various dose relationship studies and comparison with standard antiinflammatory drugs have been presented.

9302-0807 Sircar, A.R., Arvind Kumar, Roy, B., Ahuja, R.C., Natu, S.M. (Department of Medicine, King George's Medical College, Lucknow, UP, India) **A clinical trial of a herbal drug MA-471 in non-insulin dependent**

Diabetes Mellitus. *International Seminar- Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 152, (Eng).

Forty one proved maturity onset diabetic cases were subjected to long continued multidose, open clinical trial of a herbal drug MA-471 provided by Maharishi Ayurved. The drug has shown statistically significant lowering of mean fasting and post prandial glucose P less than 001, the control being maintained for long period. Significant glycemic control was found (77.7 percent) by using this drug as adjuvant therapy to oral hypoglycemic agents (OHA). The results show that MA-471 may be viewed as a beneficial addition in management of NIDDM with its ability in achieving significant lowering of blood glucose without causing undesirable side effects. (Abstr. No. P 9.09).

9302-0808 Srivastava, A.K.(Shri B.D.Ayurved Vishwa Bharati, Sardarshar, Churu, Rajasthan, India) **Charak and Ghee treatment.** *Sachitra Ayurved*, v. 45(3): p. 200, 1992 (2 ref, Hin).

Various drug preparations in ghee for the treatment of various ailments as described in Charak Samhita has been described.

9302-0809 Srivastava, V.K., Sharma, K.R. , Neema, H.(Department of Shalya-Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005,UP, India) **Management of POA glaucoma by indigenous drug.** *International Seminar- Traditional Medicine, Calcutta, 7-9 November 1992*, p. 150-151, (Eng).

Glaucoma is one of the commonest causes of blindness all over the world. The main principle of the treatment of glaucoma is to lower the intraocular pressure (IOP) to safe normal limits so as not to cause interference in the physiological function of the eye. Shweta parpati which was described in Siddhaya Sangrah (20th Cent. AD) was tried. The assessment of the drug efficacy was performed on both subjective and objective parameters. Results were discussed. (Abstr. No. P 9.07).

9302-0810 Tripathi, P.C., Sengupta, J. , Mukherjee, J. (I.P.G.E.R.A., 294/3/1, A P C Road, Calcutta 700009, WB, India) **The role of Embelia ribes in urinary tract infection.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November*, p. 112-113, 1992 (Eng).

Not given.

9302-0811 Zaman, A., Maity, L.N.(Institute of Post-Graduate Education and Research in Ayurveda, 294/3/1 Acharya Prafulla Chandra Road, Calcutta 700 009, WB, India) **Role of indigenous drug on Annadrava shoola (gastric outlet obstruction).** *International Seminar-*

Traditional Medicine, Calcutta, 7-9 November 1992, p. 149, (Eng).

Annadrava shoola or gastric outlet obstruction may occur primarily or as a sequelae of other diseases. In Ayurvedic medicine there is difference of opinion regarding the prognosis of the disease. In our work an Ayurvedic formulation consisting of Tvak (*Cinnamomumzeylanicum*), Pippali (*Piper longum*) and Shankha (*Turbinella prum*) is given in Annadrava shoola and assessment is done clinically, radiologically and biochemically. This combined drug is more efficacious and safer than the modern medicine. The details of the work were presented. (Abstr. No. P 9.05).

Pharmacology & Toxicology

9302-0812 Abu Zarga, M.H., Sabri, S.S. , Al-Tel, T.H., Atta-ur-Rahman, Fatima, N. , Shah, Z.(Chemistry Department, University of Jordan, Amman, Jordan) **Pharmacological screening of (+)-multifloramine from Colchicum decaisnei.** *Phytochemistry*, v.31(12):p. 305-309, 1992 (13 ref, Eng).

(+)-Multifloramine isolated from *Colchicum decaisnei* exhibited significant positive inotropic and negative chronotropic effects on isolated rat atria. The positive inotropic effect was not antagonized by adding propranolol. The compound showed hypotensive and tocolytic activities. The LD50 of the compound in mice was found to be 383 mg/kg body weight. Its quaternary methiodide derivative produced less effect on atria, uterus and mean arterial blood pressure. The LD50 of the derivative in mice was 31.6 mg/kg body weight.

9302-0813 Adeyemi, O.O.(Department of Pharmacology, College of Medicine, University of Lagos, P.M.B. 12003, Lagos, Nigeria) **Effects of aqueous extract of Baphia nitida on isolated cardiac tissues.** *Phytotherapy Research*, v. 6(6): p. 318-321, 1992 (5 ref, Eng).

The cold aqueous extract of fresh leaves of *B.nitida* (5.0×10^{-3} g mL) reduced the rate and force of contraction of the isolated rabbit heart. The rate and force of contraction of the spontaneously beating rat atria was dose-dependently reduced by 5.0×10^{-4} to 2.5×10^{-2} g/mL of the extract and this effect was not antagonized by 3.45×10^{-7} M atropine. The extract (5.0×10^{-2} g mL) completely blocked the positive chronotropic and inotropic effects of 10 mM CaCl₂ but only reduced that of 1.61×10^{-7} M isoprenaline. The effect of the extract on CaCl₂-induced responses of the rat atria was not affected by 3×10^{-7} M propranolol. The use of this extract for treating palpitation locally has been attributed to its negative chronotropic and inotropic effects.

9302-0814 Adhikary, P., Banerji, J., Chatterjee, A., Chowdhury, D., Jana, S., Dasgupta, S., Sengupta, A. (Centre of Advanced Studies on Natural Products, Department of Chemistry and Division of Nutrition and Biochemistry, University College of Science, 92 APC Road, Calcutta 700009, WB, India) **Studies on some indigenous plants for male antifertility activity.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 96-97, (Eng).

The effect of crude alcoholic extract of stalk of leaves of *Piper betle* in rats at doses of 800-1500 mg and 50-100 mg in mice and petroleum ether extract of seeds of *Trigonella foenum-graecum* at doses of 100-450 in rats (mg/kg body weight for 60 consecutive days) was investigated on fertility and other androgenic parameters of male reproductive organs. The results suggest antispermatojenic and/or antiandrogenic effects of *P. betle* in rats and mice (Abstr. No. IL9C).

9302-0815 Ahmed, M., Sengupta, J., Tripathi, P. (IPGERA, 294/3/1, APC Road, Calcutta 700009, WB, India) **An experimental study on the effect of whole germinated gram in hypercholesterolemia.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 138, (Eng).

To investigate the regressive effect of whole germinated gram (germinated seeds of *Cicer arietinum*) an experimental study was done at IPGERA at Calcutta. The effect was studied on male albino rats (induced hypercholesterolemia) into two groups, i.e. trial group and control group. After six weeks the result was assessed. The mean cholesterol level in the trial group was reduced from 116.82 mg/dl without any adverse effect. (Abstr. No. P 8.21).

9302-0816 Akao, T., Akao, T., Hattori, M., Namba, T., Kobashi, K. (Faculty of Pharmaceutical Sciences and Research Institute for Wakan-Yaku (Traditional Sino-Japanese Medicines), Toyama 930-01, Japan) **Inhibitory effects of glycyrrhetic acid and its related compounds on 3 α -hydroxysteroid dehydrogenase of rat liver cytosol.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1208-1210, 1992 (28 ref, Eng).

Glycyrrhetic acid (GA), aglycone of glycyrrhizin (GL), an active component of *Glycyrrhiza glabra* inhibited potently ($IS_{50}=7 \times 10^{-6} M$) and non-competitively the activity of NAD(P)⁺-linked 3 α -hydroxysteroid dehydrogenase of rat liver cytosol. The inhibition was slightly weaker than that of indomethacin, a potent antiinflammatory agent, but stronger than that of dexamethasone, another antiinflammatory agent. GL, GA monoglucuronide, and 3-epi-glycyrrhetic acid also inhibited this enzyme activity, but did so less effectively ($IS_{50}=5-8 \times 10^{-5} M$). Car-

benoxolone (GA 3-hemisuccinate) and 3-keto-glycyrrhetic acid showed potent inhibitory effects similar to GA, and 18 α -GA showed the most powerful inhibition of the activity.

9302-0817 Al-Hindawi, M.K., Al-Khafaji, S.H., Abdul-Nabi, M.H. (Pharmacognosy and Pharmacology Department, Biological Research Center, Scientific Research Council, Jadiriyyah, PO Box 2371, Baghdad, Iraq) **Anti-granuloma activity of Iraqi Withania somnifera.** *Journal of Ethnopharmacology*, v. 37(2): p. 113-116, 1992 (10 ref, Eng).

The granuloma-tissue formation inhibiting activity of various fractions of an extract of the aerial parts of *W. somnifera* were established using subcutaneous cotton-pellet implantation in rats. Antiinflammatory activity was retained in the methanolic fractions of the plant extract and was comparable to that of a 5 mg/kg dose of hydrocortisone sodium succinate. Activity has been attributed to the high content of biologically active steroids in the plant, of which withaferin A is known to be a major component.

9302-0818 Ammon, H.P.T., Safayhi, H., Mack, T., Sabieraj, J. (Department of Pharmacology, Institute of Pharmaceutical Sciences, Eberhard-Karls-University, D-W-7400 Tübingen, Germany) **Potent inhibitors of prostaglandin and/or leucotriene synthesis from turmeric and Salai Guggal.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 52-53, 1992 (Eng).

Preparations from *Curcuma longa* and *C. xanthorrhiza* (turmeric) have been used in the treatment of dyspepsia and inflammation, and extracts from the resin of *Boswellia serrata* (Salai Guggal) are used in India for the treatment of chronic polyarthritis. Employing the main constituents of both plants i.e. curcumine and boswellic acids, their effects on the pathways of arachidonic acid cascade in stimulated polymorphonuclear neutrophils (PMNL) and platelets have been studied. Extracts from the resin of *Boswellia serrata* in a dose related manner inhibited formation of 5-lipoxygenase products in PMNL. A similar effect was observed employing boswellic acids EC_{50} being 2-7 μM . *Curcuma* exhibited an antioxidative effect in Fe/ascorbate-induced peroxidation of arachidonic acid. Moreover, curcumine inhibited the formation of cyclooxygenase and 5-lipoxygenase as well as 12-lipoxygenase products. *Abst. No PL8*.

9302-0819 Anand, K.K., Gupta, V.N., Rangari, V., Singh, B., Chandan, B.K. (Department of Pharmacology, Regional Research Laboratory, Canal Road, Jammu Tawi 180001, JK, India) **Structure and hepatoprotective activity of a biflavonoid from *Canarium manii*.** *Planta Medica*, v. 58(6): p. 493-495, 1992 (19 ref, Eng).

The presence of the biflavonoid agathisflavone is reported for the first time from the dry nuts of *C. manii*. Pharmacologically, this biflavonoid in doses 50.0 mg and 100.0 mg given orally exhibited dose-dependent hepatoprotective activity against experimentally-induced carbon tetrachloride-hepatotoxicity in rats and mice.

9302-0820 Anand, R., Patnaik, G.K., Kulshreshtha, D.K., Dhawan, B.N. (ICMAR Centre for Advanced Pharmacological, Studies on Traditional Remedies, Central Drug Research Instt. Lucknow-226001, UP, India) **Anti-urolithiatic and diuretic activity of lupeol, the active constituent of isolated from Crataeva nuravala (Buch. Ham.).** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India Dec.29-31, 1991*, A10, (Eng).

Lupeol isolated as the active principle, from the plant showed significant antiurolithiatic activity in the foreign body implantation technique in rats. At the dose levels of 10, 25 and 50 mg/kg p.o. x 16 weeks lupeol showed a dose dependent inhibition of stone formation. The compound (10-50 mg/kg p.o.) also exhibited stone dissolving property ranging from 15.5 to 55 percent on the preformed stones in the urinary bladder. It also facilitated the passage of very small calculi from the bladder as shown by X-ray studies. It enhanced the excretion of calcium, phosphate and oxalate ions in the urine, which were found suppressed in the untreated implanted control groups of animals, while the levels of these parameters in the serum remained unchanged in treated as well as in control groups. The altered levels of urea and creatinine showing kidney dysfunction were also restored to normal levels by lupeol in a dose dependent manner.

9302-0821 Anand, R., Patnaik, G.K., Srimal, R.C., Dhawan, B.N. (ICMR Centre for Advanced Pharmacological Research on Traditional Remedies, CDRI, Lucknow 226 001, UP, India) **Effect of Crataeva nuravala on calcium oxalate nephrolithiasis and hyperoxaluria.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8: p. 80, 1992 (Eng).

Oral administration of ethanolic extract of *C. nuravala* stem bark @ 25, 50 and 100 mg/kg for 4 weeks showed 12-54 percent protection against deposition of stone forming constituents in the kidney and against hyperoxaluria, hypercalciuria and hypercrystalluria. Similarly lupeol, the active constituent of the plant showed dose-dependent activity.

9302-0822 Awang, I.P.R., Chulan, U., Ahmed, F.B.H. (Department of Veterinary Pathology and Microbiology, University Pertanian Malaysia 43400, UPM, Selangor Darul Ehsan, Malaysia) **Curcumin for upgrading skin**

colour of broilers. *Pertanika*, v. 15(1): p. 37-38, 1992 (3 ref, Eng).

Curcumin a natural colourant from *Curcuma longa* was mixed in chicken feed at the rate of 1mg, 10mg and 100mg per kilogram of feed and fed to a group of 37 two-week-old Isa-Vedette broiler chicks for three weeks to improve the pigmentation of the skin. The treatment resulted in the development of an attractive yellowish orange coloration of the skin compared to the skin of control birds. Skin colour intensity was noted highest in birds that received 10mg of curcumin per kilogram of feed and second highest in birds received 100 mg of the colourant. The development of fatty liver is seen to correlate with the quantity of curcumin given to the birds.

9302-0823 Bandyopadhyay, B., Chatterjee, U., Mukherjee, B., Bandyopadhyay, S. (Department of Biochemistry, University College of Medicine, 244B, AJ Bose Road, Calcutta 700 020, WB, India) **Effect of amlaki (*Embelia fischeri* Gamble) on gastric acid secretion.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 167, 1992 (Eng).

Amlaki or amla (*E. fischeri*); Adiphala or Phatri or Amalaka in Sanskrit) is a useful medicinal fruit and largely used in Ayurveda. The water extract fruit was tried in acidity cases. The results are discussed.

9302-0824 Banerjee, R., Patra, B.B., Das, J., Das, P.C., Mondal, S., Chatterjee, A. (PRU, CCRAS, Department of Pharmacology, University College of Medicine, Calcutta 700020, WB, India) **Evaluation of hypoglycaemic properties of alcoholic extract of *Bougainvillea spectabilis* on experimental animal model.** *International Seminar Traditional Medicine, Calcutta, 7-9, November, 1992*, p.137, (Eng).

Bougainvillea has its extensive use in indigenous system of medicine, on diabetic patients. The present study deals with alcoholic extract of the plant (leaves) on Streptozotocine treated hyperglycaemic rats. The blood sugar level of hyperglycaemic animals was measured for four hours in hourly interval after single dose oral administration and after prolonged administration (two weeks) of the extract on hyperglycaemic rats. Side by side biochemical estimation of liver glycogen, serum cholesterol and insulin of both controlled and treated animals was measured. Highly significant reduction of blood sugar level as well as maximum elevation of liver glycogen, reduction of serum cholesterol and significant increase on insulin level of the treated animals were noted. The possible mechanism of action was discussed. (Abstr. No. p.8.20).

9302-0825 Banerjee, S.C., Sikdar, S., Mukherjee, B., Ray, A., Mitra, S.K. (Department of Pharmacology, University College of Medicine, 244B, Acharya J C Bose Road, Calcutta 700 020, WB, India) **Pharmacological investigations with the root of *Tiliacora racemosa*.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8: p. 80, 1992 (Eng).

Alcoholic extract of *T. racemosa* caused gradual and persistent fall of blood pressure in experimental cats. The drug also showed spasmolytic activity in isolated guinea pig ileum, rat uterus and rabbit intestine. The drug also produced reversible neuro muscular blocking activity.

9302-0826 Basu, B.J., Mukherjee, B.P. (Department of Pharmacology, University College of Medicine, 244B, Acharya JC Bose Road, Calcutta 700020, India) **Physiological and behavioral effects of centrally acting traditional chemicals.** *International Seminar-Traditional Medicine, Calcutta*, 7-9 November, 1992, (Eng).

For centuries, some traditional medicine that stimulate the central nervous system have been recommended for many psycho-physiological problems. Natives of Peru and Bolivia chewed coca leaves to increase endurance and enjoy a feeling of well-being. Coffee beans and tobacco have long been used for their stimulatory qualities. In the present study some psycho-stimulants as well as CNS-stimulant drugs e.g. cocaine, nicotine, caffeine have been selected to observe their diverse type of behaviour manifestations. These physiological and behavioural effects suggest that site of the centrally active stimulant drug action is closely related to the reticular activating system (RAS) which accounts for the effects of alertness in the hypothalamus and explains behavioral action such as elevation of mood, euphoria and well-being. (Abstr. No. p8.25).

9302-0827 Basu, D.P., Chatterjee, M., Das, J. (Department of Pharmacology, University College of Medicine, 244B, Acharya JC Bose Road, Calcutta 700 20, WB, India) **Evaluation of hypoglycaemic properties of *Coccinea indica* on streptozotocin-induced diabetes in rats.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8: p. 81, 1992 (Eng).

Effective and significant control of hyperglycemia with highly significant elevation of serum insulin level was observed in patients treated with *C. indica*. The drug was found to be fifty percent less potent than Tolbutamide.

9302-0828 Beljanski, M. (Centre de Recherche Biologique, Le Village, 38370 St. Prim, France) **A new approach in cancer chemotherapy.** *International Seminar-Traditional Medicine, Calcutta* 7-9 November, 1992, p. 51, 1992 (Eng).

The classic anticancer drugs do not distinguish cancer cells from normal ones. Using a sensitive biochemical test (Oncotest), some plant alkaloids (from Apocynaceae) and flavanones capable of distinguishing *in vitro* and *in vivo* different human and animal cancer cells from normal ones were isolated. These substances prevent the *in vitro* proliferative capacity of cancer cells without affecting the multiplication and survival of normal cells. The mechanism of action has been evidenced. Selected alkaloids and flavanones bind to cancer DNA but ignore normal cells DNA. They inhibit tumor development in mice and exhibit a strong synergistic effect with classic anticancer agents without toxic effect on normal tissues. The results of these studies constitute a highly positive new approach for cancer treatment in animals and humans. (Abstr No. PL7).

9302-0829 Benencia, F., Courreges, M.C., Coulombie, F.C., Massouh, E.J. (Laboratorio de Virologia, Dto. de Quimica Biologica, Pabellon II, Piso 4, Facultad de Ciencias Exactas y Naturales, Ciudad Universitaria, 1428, Buenos Aires, Argentina) **Effect of *Melia azedarach* fresh leaf aqueous extract of mice hematological parameters.** *Fitoterapia*, v. 63(5): p. 411-413, 1992 (13 ref, Eng).

Intraperitoneal administration of *M. azedarach* fresh leaf aqueous extract to mice induced a transient increase in packed red cell volume and hemoglobin concentration in blood together with a diminution in the lymphocyte and an increase in the neutrophil number.

9302-0830 Bhanushali, A.M., Joglekar, S.N., Saraf, A.P. (Department of Pharmacology, Grant Medical College, Byculla, Bombay 400 008, Maharashtra, India) **Evaluation of protective effect of Hepatogard a compound herbal formulation in CCl₄ induced liver damage.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. A41, (Eng).

Hepatogard a compound herbal formulation was evaluated for its hepatotherapeutic action in CCl₄ induced liver damage in rats using histopathological and biochemical parameters such as SGOT, SGPT, alkaline phosphatase, cholesterol and LDH. 'Hepatogard' administered prophylactically or therapeutically could reverse rise in serum transaminases and other biochemical markers of liver damage as compared to CCl₄ treated group. The histopathological findings were also suggestive of hepatoprotective effect of 'Hepatogard'.

9302-0831 Bishayee, A., Chatterjee, M. (Division of Biochemistry, Department of Pharmaceutical Technology, Jadavpur University, Calcutta 700 032, WB, India) **Hypolipidaemic and antiatherosclerotic effects of *Gymnema sylvestre* leaf extract in rats fed on a high fat diet.**

International Seminar-Traditional Medicine, Calcutta, 7-9 November 1992, p. 157, (Eng).

The effects of *G.sylvestre* leaf extract was evaluated for its efficiency in the management of hypercholesterolemia in an experimental animal model. Oral administration of the extract for 2 weeks prevented dose-dependent high fat diet-induced rise of serum triglyceride, total cholesterol and its lipoprotein fractions- VLDL, LDL and elevated HDL with a concurrent improvement in antiatherogenic index which were rather altered in hyperlipidaemic rats. The observed antihypercholesterolemic activity of herbal extract may exert the beneficial effects on the cardiac functions as hypercholesterolemia is an important established cause of coronary heart disease. (Abstr. No. P 9.08).

9302-0832 Blankemeyer, J.T., Stringer, B.K., Rayburn, J.R., Bantle, J.A., Friedman, M. (Department of Zoology, Oklahoma State University, Stillwater, Oklahoma 74078, USA) **Effect of potato glycoalkaloids, alpha-chaconine and alpha-solanine, on membrane potential of frog embryos.** *Journal of Agricultural and Food Chemistry*, v. 40(10): p. 2022-2025, 1992 (11 ref, Eng).

To demonstrate whether potato *Solanum sp.* glycoalkaloids can alter the integrity of membranes of frog embryo, albino frog embryos were incubated with alpha-chaconine and alpha-solanine. Di-4-ANEPPS, an electrochromic fluorescent dye, was added to measure embryonic membrane potential. Alpha-chaconine increased the Di-4-ANEPPS fluorescence upto 1600 percent of control, alpha-solanine increased the fluorescence upto 400 percent and solanidine had no effect. Increases in fluorescence, when plotted in a concentration-response format, produced EC50 values near published values for FETAX (frog embryo teratogenicity assay-Xenopus). Possible mechanisms and the significance of the fluorescence results to food safety are discussed.

9302-0833 Buchbauer, G., Jager, W., Jirovetz, L. (Institute of Pharmaceutical Chemistry, University of Vienna, Vienna, Austria) **Therapeutic properties of essential oils and fragrances (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco).** *Parfumerie und Kosmetik*, v. 73(10): p. 732, 1992 (Eng).

Biological properties (mainly sedative) of essential oils and fragrance compounds, and new results in aromatherapy have been presented. Distinct biological actions evoked only by means of inhalation of essential oils and fragrance compounds have been discussed.

9302-0834 Cai, Q. (Xin-Hua Hospital, Shanghai Second Medical University, Shanghai 200092, China) **Protective effect of Sheng Mai injection on myocardial injury induced by adriamycin in cultured myocardial cells.** *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(5): p. 286-288, 1991 (5 ref, Eng).

The effect of Sheng Mai injection (SMI) on adriamycin-induced cardiotoxicity in cultured myocardial cells was examined. Adriamycin treatment (1mg/L) for 4h of culture age, increased remarkably the leakage of lactate dehydrogenase (LDH) from the myocardial cells, and induced the damage of ultrastructure. SMI (30mg/L, 300mg/L) had no effects on these changes induced by adriamycin. The results showed that SMI had no direct protective effect on adriamycin cardiotoxicity in cultured myocardial cells. Its protective effect on adriamycin cardiotoxicity seems to be in whole body level.

9302-0835 Calixto, J.B., Yunes, R.A., Medeiros, Y.S. (Department of Pharmacology (CCB), Universidade Federal de Santa Catarina, 88049 Florianopolis, SC, Brazil) **Differential antagonistic effect of hydroalcoholic extract from *Hymenaea martiniana* Hayne Arzeik on kinin and other agonist-induced contractions of the isolated rat uterus and guinea-pig ileum.** *Phytotherapy Research*, v. 6(6): p. 322-326, 1992 (16 ref, Eng).

The action of the hydroalcoholic extract (HE) from the bark of *H.martiana* on bradykinin (BK), lysyl-bradykinin (L-BK), acetylcholine (ACh), angiotensin (II) (AII), prostaglandin F2alpha (PGF2alpha), serotonin (5-HT), oxytocin (Ot) and histamine (His)-induced contractions of the isolated rat uterine muscle and guinea-pig ileum has been presented. The HE (50-200 micro g/mL) added to the bath for 20 min caused a concentration-dependent rightward displacement of BK, L-BK and ACh-induced contractions in the rat uterus, allied to a discrete but significant reduction of maximal responses to the latter two agonists. By contrast, at the same range of concentrations the HE antagonized in a concentration-dependent but non-competitive manner the contractions induced by AII, but only at high concentrations (200 micro g/mL) it significantly inhibited contractions evoked by both PGF2alpha, and Ot, while contractile responses induced by 5-GT were not affected. In the guinea-pig ileum, the HE of *H.martiana* (50 and 100 micro g/mL) caused a discrete rightward displacement of the BK and ACh concentration-response curves. Higher concentration of the HE of *H.martiana* (200 micro g/mL) caused a marked depression of BK and ACh-induced maximal responses. The active principle(s) presents in the HE from the bark of *H.martiana* was found to exhibit an interesting pharmacological profile against several neurotransmitter-induced contractions in nonvascular smooth muscles.

9302-0836 Calixto, J.B., Yunes, R.A., Medeiros, Y.S. (Department of Pharmacology (CCB), Universidade Federal de Santa Catarina, 88049, Florianopolis, SC, Brazil) **Vascular action of the crude hydroalcoholic extract from *Hymenaea martiana* on the isolated rat and rabbit aorta.** *Phytotherapy Research*, v. 6(6): p. 327-331, 1992 (17 ref, Eng).

The effect of the hydroalcoholic extract (HE) from *H. martiana* on endothelium-dependent and independent relaxation responses induced by acetylcholine (ACh), histamine (His), calcium ionophore (A23187) and sodium nitroprusside in precontracted aortic rings from rat and rabbit has been presented. The action of the HE on noradrenaline-(NA), angiotensin I-(AI) and AII-induced contractions in the rabbit aorta have also been evaluated. The HE (0.25-0.5 mg/mL) inhibited in a concentration-dependent manner the relaxant response induced by ACh in rings of rabbit aorta and by His in rat aorta. Relaxation in response to A23187 was inhibited in rat but not in rabbit aortic rings. In contrast, the HE was completely ineffective against endothelium-independent relaxations caused by sodium nitroprusside in rabbit aorta rings. The HE (0.5-1.0 mg/mL) significantly enhanced the maximal contractile responses induced by NA in rabbit aorta set up with the endothelium, but caused no effect in endothelium rubbed preparations. In addition, the HE (0.5 mg/mL) markedly antagonized the contractile responses elicited by AI, but caused only a slight effect on AII-induced contractile responses in rabbit aorta. The active principle(s) present in the HE from the bark of *H. martiana* were found to selectively inhibit the endothelium-dependent vasorelaxant responses caused by several substances in aortic rings from rat and rabbit.

9302-0837 Cao, B.J., Meng, Q.Y., Ji, N. (Department of Pharmacology, Human Institute of Pharmaceutical Industry, Changsha 410014, People's Republic of China) **Analgesic and anti-inflammatory effects of *Ranunculus japonicus* extract.** *Planta Medica*, v. 58(6): p. 496-498, 1992 (7 ref, Eng).

The analgesic and antiinflammatory effect of *R. japonicus* extract inhibited the mice writhing responses caused by acetic acid and raised the pain thresholds of mice in the hot-plate test. The extract also inhibited the paw edema of rats induced by carrageenin, ear swelling of mice caused by xylene, mice vascular permeability increase induced by acetic acid, and granuloma formation in rats.

9302-0838 Chakraborty, T. (West Bengal Pharmaceutical & Phytochemical Development Corporation Limited, ILACO House (2nd Floor), Calcutta 700 001, WB, India) **Hypoglycaemic drug from *Gymnema sylvestre* R.Br. in**

diabetes. *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 80, 1992 (Eng).

Screening study of crude extracts of indigenous plants for hypoglycaemic activity in streptozotocin (Sz) diabetic rats, revealed reproducible blood sugar lowering activity of *G. sylvestre* leaves. Systematic fractionation of the leaf extract guided by biological assay against diabetic rats, has led to the isolation of the water soluble active principle (GS) which is a mixture of isomeric triterpeneglycosides, gymnemic acids along with K⁺ and Mg⁺⁺ ions. Its acute toxicity is very low; chronic toxicity study does not show any abnormality. Detailed experimental studies reveal its hypoglycaemic effect in alloxan and Sz-diabetic rats without ketosis; prophylactic activity in diabetic rats is also significant. Clinical studies with oral therapy of GS recorded satisfactory control in 70 percent NIDDM patients (with controlled calorie intake) without showing side effect or hypoglycaemic shock. Duration of illness did not play any important role on its effect. Moreover, insulin sparing effect in juvenile diabetes is an advantage. (Abstr. No. IL 8B).

9302-0839 Chandra, T., Sadique, J. (Department of Biochemistry, PG Institute of Medical Sciences & Research, Coimbatore, 641001, TN, India) **Anti-arthritic effect of *Cardiospermum halicacabum* in rats.** *Indian Medicine*, v. 1(2): p. 12-15, 1989 (33 ref, Eng).

An attempt has been made to evaluate the effect of alcoholic fraction of *C. halicacabum*, (250 mg/kg body weight, for 15 days) on animals suffering from acute inflammation (hind paw edema). Drug significantly suppressed the swelling of the paw and weight of animals was restored to normal, acid phosphatase in serum was also reduced in drug treated animals; which suggest antiinflammatory action of drug.

9302-0840 Chattopadhyay, R.R., Banerjee, R.N., Sarkar, S.K., Ganguly, S., Basu, T.K. (Biometry Research Unit, Indian Statistical Institute, 213, Barrackpore, Trunk Road, Calcutta 700035, WB, India) **Antiinflammatory and acute toxicity studies with the leaves of *Vinca rosea* Linn. in experimental animals.** *Indian Journal of Physiology and Pharmacology*, v. 36(4): p. 291-292, 1992 (Eng).

Groups of albino mice of both sexes administered graded doses of *Vinca rosea* (Periwinkle) extracts i.p. Results show *Vinca rosea* possessed significant anti-inflammatory activity against carrageenin induced rat hind paw oedema. ED₅₀ values of *Vinca rosea* extract were found to be 260.00 mg/kg. body weight of animals. NSL, New Delhi.

9302-0841 Chauhan, S., Mathur, R. (School of Studies in Zoology, Jiwaji University, Gwalior 474011 MP, India)

Catharanthus roseus as a male antifertility agent. *Proceedings of International Conference on Fertility Regulation, Nov. 5-8, 1992, Bombay, India, (Eng).*

The aqueous extracts of the leaves of *C.roseus* administered orally to different groups of adult male rats at 150 mg and 600 mg per kg. body weight doses for 24 days caused marked reduction in the wet weights of the testis, epididymis, vas deferens and accessory reproductive glands. Necrotic changes were observed in the testes accompanied with marked dysplasia of the tubules and arrest of spermatogenesis. Histocytometric and biochemical studies were also carried out. The fertility of 80 percent of the treated male rats was found to have reduced when mated with normal proestrous female rats. Studies revealed contraceptive efficacy of *C.roseus* in male rats. M. Idris.

9302-0842 Cherian, S., Augusti, K.T. (Department of Biochemistry, University of Kerala, Thiruvananthapuram 695 581, Kerala, India) **Antidiabetic effects of a glycoside of leucopelargonidin isolated from *Ficus bengalensis* Linn..** *Indian Journal of Experimental Biology*, v. 31(1): p. 26-29, 1993 (21 ref, Eng).

Glycoside of leucopelargonidin isolated from the bark of *F.bengalensis* demonstrated significant hypoglycemic, hypolipidemic and serum insulin raising effects in moderately diabetic rats with close similarities to the effects of a minimal dose of glibenclamide. The main difference observed in their effects was that the former significantly enhanced the fecal excretion of sterols and bile acids while the later has no such action even though both controlled hypercholesteremia.

9302-0843 Chouhan, B.S., Gupta, I.L.A., Rathore, G.S., Mathur, C.B. (Upgraded Department of Ophthalmology, Dr. Sampurnanand Medical College, Jodhpur, Rajasthan, India) **Calotropis injury to eye.** *Afro Asian Journal of Ophthalmology*, v. 10(4): p. 124-125, 1992 (6 ref, Eng).

Fifty cases of local poisoning with Madar (*Calotropis procera*) and *C.gigantea* were examined to observe the nature and extent of accidental instillation of herb juice. The active principles of juice found were calctin, calotropin, calotoxin and uscharidin, which are poisonous in nature. NSL, New Delhi.

9302-0844 Cokelaere, M.M., Dangreau, H.D., Daenens, P., Bruneel, N., Arnouts, S., Decuypere, E.M.P., Kuhn, E.R. (Interdisciplinary Research Center, Katholieke Universiteit Leuven Campus Kortrijk, Universitaire Campus, E. Sabbelaan, B-8500 Kortrijk, Belgium) **Investigation of possible toxicological influences of simmondsin after subacute administration in the rat.** *Journal of Agricultural and Food Chemistry*, v. 40(12): p. 2443-2445, 1992 (11 ref, Eng).

A 5-day administration of 250 mg of simmondsin (extracted from jojoba plants, *Simmondsia chinensis*) of body weight did not have any toxicological influences on liver, pancreas, and kidneys using several biochemical parameters. Anatomopathological investigation of kidney, liver, pancreas, stomach, intestine, testis, and seminal vesicle also did not demonstrate any pathological change. Since the concentrations of CN- and of SCN- in the blood are not elevated, it is concluded that there are no indications for a liberation of HCN during the metabolism of simmondsin in the rat. The food intake inhibition and weight-reducing effect of gastrally intubated simmondsin in rats has been confirmed, but there are no indications that HCN causes the food intake reduction or the weight loss after simmondsin intake in rats.

9302-0845 Das, J., Basu, D.P., Banerjee, R., Tripathi, P. (Department of Pharmacology, University College of Medicine, 244B, AJC Bose Road, Calcutta 700 020, WB, India) **Observation on hypoglycaemic effects of *Strychnos potatorum* in experimental animal model.** *International Seminar- Traditional Medicine, Calcutta, 7-9 November 1992*, p. 136, (Eng).

Fruits of *S.potatorum* are used as folklore medicine for diabetes mellitus, though not reported amply by Ayurvedic physicians. Planned pharmacological studies in streptozotocin (Sz) induced rat diabetic models revealed its high hypoglycaemic effect in both immediate and delayed phases of hyperglycaemia. A time course study confirms long duration of action as well as immediate action. Fasting and postprandial blood sugar, cholesterol, triglyceride, HDL, LDL, VLDL and SGPT estimation in *S.potatorum* treated Sz rats showed profound influence of the plant over carbohydrate metabolism. Insulin estimation and specific histopathological tests confirm the above data. (Abstr. No. P8.18).

9302-0846 Das, P.C., Das, A., Mandal, S., Chatterjee, A., Islam, C.N., Dutta, M.K., Patra, B.B., Sikdar, S., Chakraborty, P. (Chemical Research Unit, CCRAS, Government of India, Department of Chemistry, University College of Science, Calcutta 700 009, WB, India) **On the validity of the ethnic use of *Piper nigrum* L. and *Mangifera indica* L..** *International Seminar-Traditional Medicine, Calcutta, 7-9 November 1992*, p. 84, (Eng).

P.nigrum finds extensive use in Ayurvedic system of medicine as antifatulent and antipyretic. However, the Chinese use *P.nigrum* along with "Chengshan" (*Dichroa febrifuga*) as antimalarial drug. The chemical and pharmacological investigations of *P.nigrum* were

undertaken. The major alkaloid (piperine) present in *P. nigrum* was isolated and subjected to pharmacological evaluation. Antimalarial activity of piperine has been established against *P. berghei* infection in mice. Strong analgesic activity has also been observed in piperine. Similarly in order to establish the validity of the ethnic use of *Mangifera indica* as effective remedy against burns and for the relief of burning sensation in hot summer, preliminary chemical investigation and pharmacological evaluation were undertaken. Significant anti-inflammatory activity along with moderate antibacterial and antifungal activities have been observed in the alcoholic extract of the seed kernel of *M. indica*. (Abstr. No. IL 13B).

9302-0847 De, A.K., Ghosh, J.J. (Department of Biochemistry, University College of Science, 35 Ballygaunj Circular Road, Calcutta 700 019, WB, India) **Capsaicin protects cigarette smoke induced lipid peroxidation in rat pulmonary system.** *International Seminar- Traditional Medicine, Calcutta 7-9 November 1992*, p. 97, (Eng).

Capsaicin, the pungent principle of red hot pepper, has been shown, to have a protective effect on the pulmonary system against different chemical irritant-induced lipid peroxidation. In the present study, in vitro capsaicin pretreatment was found to inhibit (1-100 nM) cigarette smoke induced lipid peroxidation in lung tissue slices and mitochondrial and microsomal preparations. This protective effect of capsaicin on pulmonary system is possibly due to its 'desensitisation' action via stabilisation of membrane lipid components, inhibition of capsaicin mediated calcium influx, and lysosomal enzyme leakage and alteration and alteration in pulmonary antioxidant enzyme defence system. This result clearly indicates the future therapeutic prospects of capsaicin in hyperreactive airway disorders caused by chemical irritants and cigarette smoke. (Abstr. No. IL 10C).

9302-0848 Debnath, P.K., Biswas, D.C., Pramanik, S.S., Goel, R.K. (Department of Kayachikitsa, JB Roy State Ayurvedic Medical College & Hospitals, Calcutta, WB, India) **Ayurvedic approach in the treatment of peptic ulcer and its validation by the effect of coconut containing preparation on aggressive and defensive mechanism.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 83, (Eng).

Radiologically proven duodenal ulcer patients where MAO (maximal acid output) was more than 10 mEq/h after pentagastrin stimulation (6 mcg/kg sc) were included in this study. All the patients were administered Narikelkhanda (coconut preparation) 5 g.p.o three times each day for 21 days. Before and after drug treatment aggressive factor, acid-pepsin and defensive factors, e.g., mucoprotein, mucoproteases, total hexose, hexoamine were estimated. It

was observed that after treatment with Narikelkhanda the clinical picture improved remarkably concomitantly with significant improvement in the defensive factors on gastric juice, with no appreciable change in the aggressive acid-pepsin factors. It was concluded that in the genesis of duodenal ulcer acid-pepsin factor increased while mucin pattern decreased. Narikelkhanda could reverse the secretory pattern. The clinical observations were confirmed by experimental studies. Precise mechanism of action of the drug could not be postulated. (Abstr. No. IL 12B).

9302-0849 Dholkawala, F.K., Rao, V.S.V.V. (Bombay College of Pharmacy, Kalina, Bombay 400098, Maharashtra, India) **Calcium channel blocking activity of thymol.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India December 29-31, 1991*, PA41, (Eng).

Thymol produced a dose dependant (10nM) negative inotropic effect on the isolated perfused frog heart and dose-dependent (0.1mM-7nM) relaxation of the calcium induced tonic contracture of guinea pig taenia coli. Thymol (0.78mM) nifedipine (.0002mM) and EDTA (1m M) all produced dose dependent inhibition of the Ca²⁺ response in the calcium depolarised taenia coli. Bay K8644 (14M) a calcium channel agonist caused reversal of the inhibition produced by thymol and nifedipine but not that of EDTA. Thymol produce smooth muscle relaxant effects at least in part by calcium channel blockade.

9302-0850 Dikshit, M., Srinivas, M.V.P., Rohatagi, S., Shukla, R., Srimal, R.C. (Division of Pharmacology, CDRI, Lucknow 226001, UP, India) **Protective effect of curcumin on myocardial ischemia in the cat.** *Proceedings of 25th Indian Pharmacological Society Conference Muzaffarpur, Bihar, India, December 5-8, 1992*; P.99 (Eng).

Efficacy of curcumin (100mg/kg, i.p) on free radical scavenging enzymes in the ischemic myocardium of the cats has been reported.

9302-0851 Dua, P.R., Tandon, M., Shukla, Y.N., Thakur, R.S. (Central Institute of Medicinal and Aromatic Plants, Lucknow 226 001, UP, India) **Adaptogenic activity of *Asparagus adscendens* (AA).** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India, v. December 5-8: p. 87, 1992* (Eng).

Crude extract of safed musli (*A. adscendens*) administered ip daily for 5 days produced increase in swimming scores in experimental rats. The drug also protected the animals against decrease in the blood pressure following ischemia.

9302-0852 Elanchezhiyan, M., Udayasankar, K., Rajarajan, S., Rajendran, P., Subramanian, S., Thyagarajan, S.P. (Dr ALMPG Institute of Basic Medical Sciences, Taramani, Madras 600113, TN, India) **In vitro and in vivo toxicity studies on an Indian medicinal plant, *Pongamia pinnata* Linn..** *Biomedicine*, v. 21(2): p. 47-52, 1992 (7 ref, Eng).

In vitro trials with 100mg/ml/w/v/ concentration of *P.pinnata* extract on vero cell lines showed that there was no cytotoxic or cytotoxic changes. In vivo safety studies done on swiss albino rats and assessed by physiological, biochemical and histopathological parameters also showed that extract was non toxic to animals. None of the animals showed any mortality weight loss or any observable. Histopathological damage during the period of analysis. It is concluded that *Pongamia* extract is not toxic to in vitro and in vivo animal system used. NSL, New Delhi.

9302-0853 Elhardallou, B.S. (Department of Food Science and Technology, University of Gezira, Wad Medani, P.O.Box 20, Sudan) **The bile acids binding of the fibre-rich fractions of three starchy legumes.** *Plant Foods for Human Nutrition*, v. 42(3): p.207-218, 1992 (13 ref, Eng).

The bile acid binding to undigestible fibre has a significance on bile acids excretion. This was known to result in lowering blood cholesterol (for the use of cholesterol in bile acid formation) as well as reducing the colorectal cancer risk (through decreased formation of secondary bile acids). Compared to the model fibres Solka floc and carboxymethylcellulose (CMC), the investigated fibre fractions of *Lens culinaris*, (lentils), broad beans *Vicia faba* and *Phaseolus lunatus* (butter beans), were found to bind more cholic acid and chenodeoxycholic acid under conditions simulating the small intestine.

9302-0854 Fang, L., Ning-Quan, S., Gui-Cheng, X. (Nanjing College of TCM, Nanjing 210005, China) **Experimental and clinical study of Tong Jing Bao and Angelicae Complex injection in treating fallopian tube obstruction.** *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(5): p. 282-285, 1991 (6 ref, Chi, Eng).

Twenty-two female rabbits with fallopian tube obstruction as the model, were made by 25 percent Phenol-Tragacanth mucilage in the laboratory study. Eight rabbits were treated by taking Tong Jing Bao and giving transcervical intrauterine injection of Angelicae complex. Seven were treated with the latter and other seven with 0.9 percent saline only as the control group. The study showed that in the opening fallopian tube, anti-inflammation, limiting the hyperplasia of fibro-connective tissue and improving the regeneration of epithelial tissue, the first group was more

effective than the other two groups (P). Forty-eight infertile women, in whom the fallopian tube obstruction were proved by hysterosalpinogography, were divided into two groups for the clinical study. The effective rates were 94.6 percent and 56.6 percent and the subsequent pregnancy rates were 46.7 percent and 27.8 percent respectively in the different two groups..

9302-0855 Friedman, M., Rayburn, J.R., Bantle, J.A. (Food Safety Research Unit, Western Regional Research Centre, Agricultural Research Service, U.S. Department of Agriculture, 800 Buchanan Street, Albany, California 94710, USA) **Structural relationships and developmental toxicity of Solanum alkaloids in the frog embryo teratogenesis assay-xenopus.** *Journal of Agricultural and Food Chemistry*, v. 40(9): p. 1617-1624, 1992 (29 ref, Eng).

Solanum plants produce potentially toxic alkaloids. As part of a program to improve safety of plant-derived foods such as potatoes, the relative embryotoxicities of 13 structurally different compounds using the frog embryo teratogenesis assay- Xenopus (FETAX) were examined. Minimum concentrations needed to inhibit growth of the embryos, the median lethal concentration of 96-h exposure (96-h LC50), and the concentration inducing gross terata in 50 percent of the surviving animals 96-h-EC50 (malformation) were measured. The following glycoalkaloids produced concentration-response curves: alpha-chaconine, alpha-solanine, solasonine, and alpha tomatine. All compounds were tested at equimolar (0.005 and 0.015 mM) concentrations in order to develop a relative potency scale. The data showed that (a) glycoalkaloids are more toxic than corresponding aglycons lacking the carbohydrate groups, (b) for glycoalkaloids, the nature of the carbohydrate strongly influences potency, (c) the nitrogen of the steroid is required for teratogenicity, (d) the orientation of the unshared electron pair associated with the nitrogen atom does not affect potency, and (e) the presence of nitrogen in rings of non-steroidal alkaloids such as atropine, scopolamine, and ergonovine dose not impart teratogenicity.

9302-0856 Garg, G.P., West, M.E. (Department of Pharmacology, SS Medical College, Tumkur, AP, India) **Hypotensive action of *Anacardium occidentale*.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India, December 5-8, 1992*; p. 90 (Eng).

A.occidentale dissolved in 0.9 percent saline (20mg/ml) injected i.v. in anesthetised rats reduced blood pressure and heart-rate. The BP returned towards the basal and showed a variable response for up to 240 min, while heart rate increased at 120, 180 and 240 min.

9302-0857 Garg, G.P., Ogle, C.W., Nigam, S.K. (Department of Pharmacology, Faculty of Medicine, University of Hong Kong, Hongkong) **Mechanism of antiulcer action of the leaves of the neem tree.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, December 29-31, 1991*, p.40, (Eng).

A single dose (10.40 or 160mg/kg 5 ml/kg) of the aqueous extract of the leaves exerted antiulcer effect in rats. Effect of 5 dose treatment was studied on gastric damage, mucosal mast cell counts and the adherent glandular mucus. Rats starved for 48h were orally given the extract 10.40 or 160 mg/kg at 09.00 and 17.00 h on days 1 and 2 and at 09.00 h on day 3. Neem dose-dependently reduced the severity of gastric damage and prevented the mast cell degranulation. Neem reduced mucus in nonstressed rats but reversed this in stressed rats (160mg/kg) Neem exerted antiulcer effect by preventing mast cell degranulation and mucus depletion in stressed rats.

9302-0858 Gene, R.M., Marin, E., Adzet, T. (Laboratory of Pharmacology and Pharmacognosy, Faculty of Pharmacy, University of Barcelona, Avda, Diagonal 643, 08028-Barcelona, Spain) **Anti-inflammatory effect of aqueous extracts of three species of the genus *Baccharis*.** *Planta Medica*, v. 58(6): p. 565-566, 1992 (15 ref, Eng).

Aqueous extracts of the aerial parts of *Baccharis articulata* (BA), *B. crispa* (BC) and *B. trimera* (BT) were tested at a single dose of 100 mg/kg both orally and intraperitoneally BT aqueous extract administered i.p produced a marked inhibition of edema. BC and BA aqueous extracts, however, showed only weak or non-significant activity. None of the three extracts was active when administered by the oral route.

9302-0859 Geodakyan, S.V., Voskoboinikova, I.V., Tjukavkina, N.A., Kolhir, V.K., Kolesnik, Y.A., Zjuzin, V.A., Glyzin, V.I., Sokolov, S.J. (Department of Organic Chemistry, Moscow Medical Academy, 5th Parkovaya Street 21, Moscow 105043, USSR) **Experimental pharmacokinetics of biologically active plant phenolic compounds. 1. Pharmacokinetics of mangiferin in the rat.** *Phytotherapy Research*, v. 6(6): p. 332-334, 1992 (5 ref, Eng).

The pharmacokinetics of mangiferin (the main component of the drug 'Alpizarin' derived from *Hedysarum alpinum*) was studied by HPLC in rats after intravenous injection of the drug in a single dose of 0.3, 1, 3, 10 and 30 mg/kg and after its oral administration in a single dose of 50-500 mg/kg. It was shown that the mangiferin pharmacokinetics for the above dose levels was nonlinear, and within each dose could be described by a two-compartmental model.

Its nonlinearity has been associated with saturated binding and metabolism of the compound.

9302-0860 Ghosh, A.K., Paul, A. (Department of Biochemistry, University College of Medicine, 244B Acharya JC Bose Road, Calcutta 700 020, WB, India) **Enzymological study on depression of reproductive function of female albino rat by *Ipomoea digitata*.** *International Seminar- Traditional Medicine, Calcutta 7-9 November 1992*, p. 163, (Eng).

Enzymological change of uterine fluid, which is an indicator of progressive uterine gestation, has been investigated after administration of *I. digitata* extract. For this 26 female rats with regular 6-day estrous cycle were taken, of which 16 were treated orally 500 mg/kg of extract from day 1 to day 4 postcoital. Ten rats served as control. Uteri of all experimental and control were dissected each day from day 4 to 7. Tissue of each uterus was weighed and biochemically estimated for alkaline phosphatase. Enzyme started increasing soon after decidualization. Similar result was observed in control. In experimental group, enzyme activity during day 4-7 remained significantly lower than control. This may be an indirect proof of supporting, impairment of decidualization followed by failure of implantation. (Abstr. No. P 9.23).

9302-0861 Ghosh, R.B., Shaw, B.P. (J.B. Roy State Ayurvedic Medical College & Hospital, Calcutta, WB, India) **Effect of mushakarni (*Hemigraphis birta*) on clinical amoebiasis.** *International Seminar, Traditional Medicines, Calcutta, 7-9 November, 1992*, p.142, (Eng).

The Mushakarni (*H. birta*) is included in this study in consideration with its effect in Prabihika. In this study *Entamoeba histolytica* positive (trophozoites) patients were included where Mushakarni powder 125-500 mg 8 hourly was used. For comparison Kutaja *Holarrena antidysenterica* 1.5-6g and metronidazole 100-400 mg 8 hourly were administered to the patients. It was observed that the drug possesses antiamebic activity clinically but its effectiveness in comparison to Kutaja and metronidazole was weak. Chemical study with Mushakarni reveals that it contains chemical compounds belonging to steroid and alkaloid group. The exact nature needs to be elucidated for finding out the possible mechanism of action. (Abstr. No. p.8-27).

9302-0862 Ghosh, S.K., Poddar, M.K. (Department of Biochemistry, University of Calcutta, 35 B.C. Road, Calcutta 700 019, WB, India) **Delta-9-tetrahydrocannabinol (THC): Its action on theophylline (Th)-induced effect in mammals.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November 1992*, p. 131-132, (Eng).

Delta-9-THC (highly lipophilic compound) and Th (a hydrophilic compound) are the psychoactive ingredients of marijuana and tea or coffee respectively. Both these compounds bind to adult rat brain synaptosomes (BS) and liver microsomes (LM) but their nature of binding is different. The mechanism of binding is discussed. The study reveals that delta-9-THC may potentiate and sustain the action of Th by reducing its metabolism and binding to the tissue membranes and delta-9-THC is greatly inactivated through its own increased binding to the liver microsomes in presence of Th. (Abstr. No. P 8.13).

9302-0863 Ghosh, S.K., Poddar, M.K. (Department of Biochemical, University of Calcutta, 35 Ballygunge Circular Road, Calcutta 700 019, WB, India) **Effect of theophylline on binding of delta-9-tetrahydrocannabinol with mammalian neuronal and non-neuronal membranes.** *Indian Journal of Experimental Biology*, v. 31(2): p. 130-135, 1993 (28 ref, Eng).

Delta-9-tetrahydrocannabinol (THC) a lipophilic components of *Cannabis* (1.6×10^{-6} - 13.33×10^{-6} M) binds to neuronal and non-neuronal subcellular membranes in a biphasic manner. Its binding to neuronal membranes occur in the following order synaptosome myelin brain microsome and brain mitochondria. Unlike brain membranes binding of delta-9-THC is greater with liver microsome than liver mitochondria. Irrespective of membranes theophylline (Th), xanthin compound of tea and coffee, increases the binding of delta-9-THC binding sites on the subcellular membrane without affecting its binding affinity. Failure of Th to increase the binding of delta-9-THC in solubilized membranes suggests the involvement of membrane lipid in the Th-induced enhancement of delta-9-THC binding.

9302-0864 Gong, P., Shu-Shong, X., Fang-hua, Q. (Department of Immunology, Beijing Medical University, Beijing 100083, China) **Enhancing effect of Kang Shuai Sen Fang on immune functions of mice.** *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(4): p. 223-225, 1991 (5 ref, Eng, Chi).

Effects of Kang Shuai Sen Fang (KSSF) on the immune functions of mice has been studied. The results indicated that KSSF was able to enhance the proliferation response of spleen cells of mice to Con A and LPS. At the dosage of 400 mg/kg.d, KSSF could stimulate the production of plaque forming cells (PFC), the DIH response induced by allogeneic splenocytes. The mixed lymphocyte reaction was much stronger in the drug receiving group than that in the control group. Further study indicated that KSSF was able to enhance the activities of cytotoxic T lymphocyte and the production of interleukin 2.

9302-0865 Gonzalez, M., Zarzuelo, A.*, Gamez, M.J., Utrilla, M.P., Jimenez, J., Osuna, I. (Departamento de Farmacologia, Facultad de Farmacia, Universidad de Granada, 18071 Granada, Spain) **Hypoglycemic activity of olive leaf.** *Planta Medica*, v. 58(6): p. 513-515, 1992 (10 ref, Eng).

The hypoglycemic activity of olive (*Olea europaea*) leaf was studied. Maximum hypoglycemic activity was obtained from samples collected in the winter months, especially in February. One of the compounds responsible for this activity was oleuropeoside, which showed activity at a dose of 16 mg/kg. This compound also demonstrated antidiabetic activity in animals with alloxan-induced diabetes. The hypoglycemic activity of this compound may result from two mechanisms: (a) potentiation of glucose-induced insulin release, and (b) increased peripheral uptake of glucose.

9302-0866 Grases, F., Masarova, L., Costa-Bauza, A., March, J.G., Prieto, R., Tur, J.A. (Department of Chemistry, University of Balearic Islands, 07071, Palma de Mallorca, Spain) **Effect of "Rosa Canina" infusion and magnesium on the urinary risk factors of calcium oxalate urolithiasis.** *Planta Medica*, v. 58(6): p. 509-512, 1992 (9 ref, Eng).

The effects on the calcium oxalate urolithiasis urinary risk factors of "*R. canina*", in herb infusion form, and magnesium chloride have been studied using female Wistar rats under balanced dietary conditions. No significant effects on the volume of liquids drunk or on creatinine, phosphate and oxalate urinary concentrations and excretions were observed. The herb infusion did not cause any diuretic effect. Calciuria decreased and citraturia increased when taking the herb infusion, and vice versa when taking magnesium chloride. Magnesium chloride decreased the urinary pH value, but this effect was not observed when magnesium chloride was administered with herb infusion. In conclusion, the same beneficial effects of the studied infusion herb on calcium oxalate urolithiasis urinary risk factors can be clearly detected.

9302-0867 Guo-Liang, L., Wen-Xue, Y., Yu-jie, F. (Geriatrics Institute, 1st Sanatorium, Shenyang Military area, Dalian, 116013, China) **Clinical and experimental study of tablet cucumber vine compound in treating essential hypertension.** *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(5): p. 274-276, 1991 (5 ref, Eng).

389 patients with essential hypertension were divided into two groups randomly, 241 patients were treated by tablet of cucumber vine compound and 148 patients by tablet of hypotension compound as control. The

symptomatic marked improvement and total effective rate were 63.1 percent and 81.7 percent in the treated group and 39.2 percent and 67.0 percent (P) in the control group respectively. The marked effective rate in decrease of blood pressure and total effective rate were 52.7 percent, 90.9 percent and 58.1 percent, 92.6 percent (P0.05) respectively. Experiments with animals showed that tablet cucumber vine compound possessed persistently decreasing effect on the blood pressure and marked effect on increasing coronary blood flow and improving myocardial contraction. Clinical observation and toxicological test proved that tablet cucumber vine compound had no toxicity and had few side effects and that it was an effective, safe medicine for essential hypertension.

9302-0868 Gupta, P.P., Srimal, R.C., Tandon, J.S. (ICMR Centre for Advanced Pharmacological Studies on Traditional Remedies, Central Drug Research Institute, Lucknow 226 001, UP, India) **Antiallergic activity of coleonol, a diterpene from *Coleus forskohlii*.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. P-I, (Eng).

Degranulation of normal and passively sensitised mast cells from rat, induced by compound 48/80 (0.5 micro g/ml) and egg albumin (0.1 mg/ml) respectively were inhibited (40-82 percent) by coleonol (0.1 to 1.0 mg/ml). Coleonol (10 mg/kg po for 4 days) inhibited degranulation (54 to 65 percent) of both normal and sensitised mast cells isolated from treated rats. It also (10 to 50 mg/kg po) inhibited passive cutaneous anaphylaxis (PCA) in rat (50 to 74 percent). However, by i.p. route the compound inhibited PCA reaction (56 to 60 percent) at much lower doses (0.1 to 1.0 mg/kg). It indicated poor absorption of coleonol when given orally. Coleonol hemisuccinate inhibited PCA by 60 percent at much lower dose (1.0 mg/kg po) indicating better absorption.

9302-0869 Hoffmann-Bohm, K., Lotter, H., Seligmann, O., Wagner, H. (Institut of Pharmaceutical Biology, Ludwig-Maximilians-University of Munich, Karlstr. 29, D(W)-8000 Munich 2, Federal Republic of Germany) **Antihepatotoxic C-glycosylflavones from the leaves of *Allophyllus edulis* var. *edulis* and *gracilis*.** *Planta Medica*, v. 58(6): p. 544-548, 1992 (24 ref, Eng).

From the leaves of *A. edulis* var. *edulis* and *A. edulis* var. *gracilis* nine C-glycosylflavones have been isolated and identified as schaftoside, vicienin-2, lucenin-2, isovitexin 2"-O-rhamnoside, cerarvensin 2"-O-rhamnoside, vitexin 2"-O-rhamnoside, isoorientin 2"-O-rhamnoside, orientin 2"-O-rhamnoside and saponarin. In addition, gallic acid, the phenol C-glycosides bergenin and 11-O-galloylbergenin, three flavonol 3-O-rhamnosides and a new C-glycosylflavone identified as mollupentin 2"-O-rhamnoside

were obtained from the leaves of *A. edulis* var. *edulis*. Their structures were elucidated on the basis of chemical and spectral data. For the first time the C-glycosylflavones were found to have remarkable antihepatotoxic activities against CCl₄ and galactosamine cytotoxicity in primary cultured rat hepatocytes. The C-glycosylflavones, 11, 12, 13, 15 and 17 were found to exhibit high activities. Structure-activity relationships are discussed.

9302-0870 Horie, T., Awazu, S., Itakura, Y., Fuwa, T. (Department of Biopharmaceutics, Tokyo College of Pharmacy, 1432-1 Horinouchi, Hachioji, Tokyo 192-03, Japan) **Identified diallyl polysulfides from an aged garlic extract which protects the membranes from lipid peroxidation.** *Planta Medica*, v. 58(5): p. 468-469, 1992 (11 ref, Eng).

The aged garlic *Allium sativum* was fractionated and sulfide fractions were obtained. All fractions obtained from sulfide fraction were subjected to the assay for antioxidant activity. Using rat liver microsomes. As a result, five components were found to have high activities to inhibit lipid peroxidation. ¹H-NMR, ¹³C-NMR, and the high resolution mass spectroscopy revealed these components to be the diallyl polysulfides $CH_2=CH-CH_2-(S)_n-CH_2CH=CH_2$ (n=3-7), i.e. diallyl trisulfide, and diallyl heptasulfide. Their inhibiting effects against lipid peroxidation were dose-dependent.

9302-0871 Hsu, H.Y., Lin, C.C., Hau, D.M. (School of Technology for Medical Sciences and School of Pharmacy, Kaohsiung Medical College, Kaohsiung, Taiwan) **Restoration of radiation injury in mice by two Chinese medicinal prescriptions Kuei-Pi-Tang and Jen-Sheng-Yang-Yung-Tang.** *Phytotherapy Research*, v. 6(6): p. 294-299, 1992 (15 ref, Eng).

A comparison of Kuei-Pi-Tang and Jen-Sheng-Yang-Yung-Tang, two traditional Chinese medicines, consisting of twelve herbs each, on promoting the recovery of mice from radiation-induced damage was studied by using the measurements of colony forming stem cells in spleen, the appearance of occult blood in faeces and changes of haemograms after X-irradiation. Different sequences of X-irradiation were studied with or without drug administration in groups of ICR strain mice which were intraperitoneally injected at a concentration of 10 or 20 mg/20 g body weight, once a day for 7 consecutive days. Kuei-Pi-Tang showed no significant difference on the efficacy of recovery from haemorrhage and haemograms, as compared with that of Jen-Shen-Yang-Yung-Tang. In contrast, the effect of Kuei-Pi-Tang on the recovery of CFUs was more likely induced by eliminating the radiosensitivity of bone marrow cells. However, Jen-Sheng-Yang-Yung-Tang appears to increase the radiotolerance of the cells. The recovery of thrombocyte

counts which was reported to have an important influence on the survival ratio coincided with that of the recovery from haemorrhage.

9302-0872 Huh, K., Song, J.W., Choi, J.W. (College of Pharmacy, Kyeungsung University, Pusan 608-736, Korea) **Studies on uterus contraction of the components of *Undaria pinnatifida*.** *Korean Journal of Pharmacognosy*, v. 23(3): p. 146-152, 1992 (24 ref, Eng, Kor).

U. pinnatifida was investigated to find out its contractive compounds and the contractive mechanism. The active extract, MeOH extract was partitioned with CHCl₃ extract significantly increased uterus contraction in vitro and in situ studies. The contraction by CHCl₃ extract was not blocked by atropine, prazosin and propranolol. Blood estrogen level was not changed by CHCl₃ extract.

9302-0873 Hussain, P., Roychoudhury, R.K. (Department of Veterinary Medicine, College of Veterinary Science, Khanapara Guwahati 781022, Assam, India) **Ruminal function tests in *Lantana camara* (Linn.) toxicity in bovine.** *Indian Journal of Veterinary Medicine*, v. 12(1): p. 24-25, 1992 (8 ref, Eng).

Ruminal movements decreased abruptly in all the animals after feeding leaves and small shoots @ 10g/kg b.wt of *L. camara*. High alkalinity of rumen fluid was recorded which might be due to decreased microbial population and increased salivation. Rumen protozoal motility was also decreased by the 2nd day, by the 4th day it was sluggish and was absent thereafter. NSL, New Delhi.

9302-0874 Ichihara, Y., Takeya, K., Hitotsuyanagi, Y., Morita, H., Okuyama, S., Suganuma, M., Fujiki, H., Motidome, M., Itokawa, H. (Department of Pharmacognosy, Tokyo College of Pharmacy, Horinouchi 1432-1, Hachioji, 192-03, Tokyo, Japan) **Cajucarinolide and isocajucarinolide: Anti-inflammatory diterpenes from *Croton cajucara*.** *Planta Medica*, v. 58(6): p. 549-551, 1991 (18 ref, Eng).

Cajucarinolide and isocajucarinolide, two new clerodane diterpenes, have been isolated from the cortices of *C. cajucara*. These compounds exhibited anti-inflammatory activity against teleocidin-induced inflammation on the inner surface of the mouse ear pinna and inhibited bee venom phospholipase A₂ in vitro.

9302-0875 Ishiguro, M., Matori, Y., Tanabe, S., Kawase, Y., Sekine, I., Sakakibara, R. (Department of Biochemistry, School of Clinical Pharmaceutical Sciences, Nagasaki University, 1-14 Bunkyo-machi, Nagasaki 852, Japan) **Biochemical studies on oral toxicity of ricin. V. The role of lectin activity in the intestinal absorption of ricin.**

Chemical & Pharmaceutical Bulletin, v. 40(5): p. 1216-1220, 1992 (18 ref, Eng).

After the oral administration of ricin (a toxin from *Ricinus communis*) derivatives to rats, their interaction with the digestive tract and absorption into the circulatory systems have been compared with those of rincin, immunochemically and histologically. It was shown by immunostaining that ricin and BMH-ricin could bind to the intestinal mucosa, whereas NBS-ricin could not. No appreciable damage in the small intestine from rats treated with either BMH-ricin or NBS-ricin has been observed, in contrast to ricin treatment where severe impairment of the small intestinal tissues resulted after 5h. Immunoreactive ricin in the liver has been determined with the ricin enzyme immunoassay. When compared at 48h after oral administration, NBS-ricin was not detected, whereas BMH-ricin was found to be 38 micro g/liver and ricin 100 micro g/liver. From these results, it was inferred that the lectin activity of ricin plays an important role in the absorption of ricin from the small intestine and that the absorption of ricin protein was enhanced by its high toxicity.

9302-0876 Iwakami, S., Wu, J.B., Ebizuka, Y., Sankawa, U.* (Faculty of Pharmaceutical Sciences, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113, Japan) **Platelet activating factor (PAF) antagonists contained in medicinal plants: Lignans and sesquiterpenes.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1196-1198, 1992 (20 ref, Eng).

Hot aqueous extracts of medicinal plants were tested for their inhibitory effect on the platelet activating factor (PAF) to rabbit platelets. The extracts of *Forsythia suspensa*, *Arctium lappa* and *Centipeda minima* showed significant activities. Since the main constituents of *F. suspensa* and *A. lappa* are lignans, 30 lignans were tested for their inhibitory effects on PAF binding to platelets and 9 lignans were found active. Four sesquiterpenes were isolated as active compounds from *C. minima*. In particular 6-O-angeloylplenolin and 6-O-senecioidylplenolin are the most potent and specific PAF antagonists found in this study.

9302-0877 Jameel, S., Pillai, K.K., Husain, S.Z., Imran, M. (Department of Pharmacology, Faculty of Pharmacy, Jamia Hamdard, New Delhi 110062, India) **Influence of "Khamira Abresham Hakim Arshadwala" on adriamycin induced toxicity in rats.** *Indian Drugs*, v. 29(15): p. 686-690, 1992 (19 ref, Eng).

Adriamycin, in a single i.v. dose of 10mg/kg in rats, produced hyperlipoproteinemia, alternations of cardiac metabolism characterised by increased, thiobarbituric acid reactive substances (TBARS) production, depletion of

catalase, and histopathological changes in heart tissue, typical of cardiomyopathy. Unani polypharmaceutical, Khamira Abresham Hakim Arshadwala (KA) containing thirteen plant drugs showed an inhibitory effect upon some of these adverse effects. KA inhibited the rise in total cholesterol concentration significantly and increased the HDL cholesterol concentration. However significant changes on other parameters could not be observed when KA was administered at the dose level of 100mg/kg.p.o..

9302-0878 Jiang, Y., Weniger, B., Haag-Berrurier, M., Anton, R., Beck, J.P., Italiano, L. (Laboratoire de Pharmacognosie, Faculté de Pharmacie, BP 24, 67401 Illkirch Cedex, France) **Effects of saponins from *Mimosa tenuiflora* on lymphoma cells and lymphocytes.** *Phytotherapy Research*, v. 6(6): p. 310-313, 1992 (12 ref, Eng).

Saponosides: mimonosides A, B and C, isolated from the bark of *Mimosa tenuiflora* were tested for their influence on cell growth. These effects were evaluated in vitro on a panel of lymphoma cells from human and murine origins and on murine lymphocytes (thymocytes and splenocytes). The three saponins did not exhibit any growth influence on two tumour cell lines (Molt 4 and RDM 4). However, they exhibited an important increase of incorporation of tritiated thymidine into DNA of cultured lymphocytes in vitro. Synergic effects of the saponins with concanavaline A and lipopolysaccharide on the lymphocytes were observed.

9302-0879 Jisaka, M., Kawanaka, M., Sugiyama, H., Takegawa, K., Huffman, M.A., Ohigashi, H. (Department of Food Science and Technology, Kyoto University, Kyoto 606, Japan) **Antischistosomal activities of sesquiterpene lactones and steroid glucosides from *Vernonia amygdalina* possibly used by wild chimpanzees against parasite related diseases.** *Bioscience, Biotechnology and Biochemistry*, v. 56(5): p. 845-846, 1992 (8 ref, Eng).

Anti-schistosomal activities of sesquiterpene lactones viz, vernodaline, 1; vernolide, 2' hydroxy vernolide, 3; vernodalol and the steroid glucosides viz., vernonioside. A1, A2, A3, B, including their aglycones. Using *Schistosoma japonicum* were examined. All the sesquiterpene lactones inhibited movement and egg-laying of Schistosomes at 200ppm. Aglycones inhibited egg laying at 20 ppm. The antischistosomal activity of vernodaline in vivo showed that it is highly toxic and lethal at more than 5 mg (120mg/kg). Leaves and stem barks contained high levels of vernodaline.

9302-0880 Takegawa, H., Matsumoto, H., Satoh, T. (Faculty of Pharmaceutical Sciences, Tokushima Bunri University Yamashiro-Tokushimacho, Tokushima 770, Japan) **Inhibitory effects of some natural products on the activation of hyaluronidase and their anti-allergic ac-**

tions. *Chemical & Pharmaceutical Bulletin*, v. 40(6):p. 1439-1442, 1992 (27 ref, Eng).

Among the compounds tested, the natural products like isoliquiritin from *Glycyrrhiza glabra*, baicalin from *Scutellaria baicalensis* and paeoniflorin from *Paeonia albiflora* showed dose related inhibitory effects. Antiallergic activities of these compounds were evident from the facts that they inhibited the histamine release from rat peritoneal exudate cells induced by antigen, compound 48/80 and calcium ionophore A-23187, and from their inhibitory effect on Shultz-Dale reaction using sensitized guinea-pig ileum.

9302-0881 Kaneda, N., Chai, H., Pezzuto, J.M., Kinghorn, A.D., Farnsworth, N.R., Tuchinda, P., Udchachon, J., Santisuk, T., Reutrakul, V. (Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, Illinois 60612, USA) **Cytotoxic activity of cardenolides from *Beaumontia breviflora* stems.** *Planta Medica*, v. 58(5): p. 429-431, 1992 (17 ref, Eng).

Five known cardenolides, digitoxigenin, oleandrigenin, digitoxigenin alpha-L-cymaroside, digitoxigenin beta-gentiobiosyl-alpha-L-cymaroside, digitoxigenin beta-gentiobiosyl-alpha-L-cymaroside and delta-digitoxigenin beta-D-glucosyl-alpha-L-cymaroside, were isolated from the stems of *B. breviflora* by cytotoxic-directed fractionation monitored by a cultured human lung cancer cell line. The cytotoxic activity of these compounds were evaluated with a panel of twelve human and murine cancer cell lines. The lignan glycoside, Syringaresinol beta-D-glucoside, was obtained for the first time in the form of its levo-enantiomer.

9302-0882 Karnick, C.R. (Wochardt Limited, Aurangabad, Maharashtra, India) **Clinical evaluation of composite Ayurvedic drugs, on calculi, in the kidney and urinary bladder.** *Aryavaidyan*, v. 6(2): p. 104-108, 1992 (17 ref, Eng).

The following herbal combination was used viz., *Bergenia ligulata* (100mg), *Tinospora cordifolia* (100mg), *Eclipta alba* (100mg), *Asperagus racemosus* (50mg), *Withania somifera* (50mg), *Myristica fragrans* (100mg) for the treatment of renal calculi. Cases with various complications have been effectively treated with the 450 mg capsule, without any side effects and calculi disintegration has taken place within 15 days. NSL, New Delhi.

9302-0883 Kawansithi, K. (Kobe Women's College of Pharmacy, Japan) **Bioactive principles in Amazonian hallucinogenic plants.** *International Seminar-Traditional Medicine, Calcutta*, 7-9 November, p. 55-56, 1992 (Eng).

The use of hallucinogenic plants by natives in Amazon basin is one of the knowledges and means created by their daily lives from the old times. Chemical studies with some of the plants have been done eg., *Adenantha* (Piptadenia) spp., *Virola* spp. and *Banisteriopsis caapi*. Some of the plant hallucinogens contained tryptamine and/or beta-carboline derivatives. In view of the results, beta carbolines may be useful in characterizing the properties of antidepressant drugs and evaluating antiparkinson drugs *Abstr. No. PL12*.

9302-0884 Kawashima, K., Endo, H., Inagawa, H., Okutomi, T., Morikawa, A., Soma, G.I., Mizuno, D. (Biotechnology Research Center, Teikyo University, Nogawa, Miyamae-ku, Kawasaki 216, Japan) **Homeostasis as regulated by activated macrophage VIII. LPSw (a lipopolysaccharide from wheat flour) can regulate bone resorption of chick embryo.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1271-1273, 1992 (9 ref, Eng).

The effect of LPSw (a lipopolysaccharide from wheat *Triticum aestivum*) on the bone resorption of 18-d chick embryonic calvaria was examined in an organ culture. Bone was prelabeled in culture medium containing ^{45}Ca and chased in a cold medium. On addition of test samples, labeled calcium was released indicating the grade of bone resorption. LPSw (10-100 micro g/ml) stimulated bone resorption, showing an effect comparable to parathyroid LPSw is thus assumed to stimulate bone resorption more actively than PTH.

9302-0885 Kinungu, S., Das, B.N., Mohanty, S., Das, M., Patnaik, J., Mohanty, M. (Department of Pharmacology, M K C G Medical College, Berhampur 760 004, Orissa, India) **A study of the effects of *Tridax procumbens* Linn. on normal and heparine induced prolongation of clotting time in rabbits.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8; 1992 p. 81, (Eng).

T. procumbens extract @ 200 mg/micro g I.P. injected to experimental rabbits reduced the normal clotting time.

9302-0886 Kubo, M., Tong, C., Matsuda, H. (Faculty of Pharmaceutical Sciences, Kinki University, 3-4-1. Kowakae, Higashiosaka, Osaka 577, Japan) **Influence of the 70 percent methanolic extract from red ginseng on the lysosome of tumor cells and on the cytotoxic effect of mitomycin C.** *Planta Medica*, v. 58(5): p. 428, 1992 (6 ref, Eng).

The influence of the 70 percent methanolic extract (RMe) from red ginseng *Panax ginseng* on the lysosome of tumor cells and on the cytotoxic effect of mitomycin C (MMC) was investigated. RMe treatment showed an in-

hibitory effect on the solid form of Ehrlich ascites carcinoma but had no effect on the ascites form. MMC combined with RMe showed stronger antitumor effects, at the same time, the activity of lysosomal enzymes in tumor cells was also increased in comparison with that treated with MMC alone. Furthermore, RMe promoted the uptake of MMC into the tumor cells and enhanced in vitro the cytotoxicity of MMC against the cultured tumor cells. From these results it was concluded that RMe labilized the lysosomes of tumor cells in vivo, and increased the uptake of MMC into the tumor cells, and that the cytotoxic effect of MMC was enhanced by concomitant treatment with RMe.

9302-0887 Kubo, S. et.al. (Second Department of Surgery, Osaka City University Medical School, 1-5-7, Asahi-machi, Abeno-ku, Osaka 545, Japan) **Effect of gomisin A (TJN-101) on liver regeneration.** *Planta Medica*, v. 58(6): p. 489-492, 1992 (23 ref, Eng).

TJN-101, a lignan component of *Schisandra* fruits (*Schisandrae fructus*) was given orally to male Wistar rats 30 min before partial hepatectomy. The mitotic index and the level of DNA synthesis increased after partial hepatectomy and their increase was significantly enhanced by TJN-101. Ornithine decarboxylase (ODC) activity increased in the early stages of liver regeneration and it was also significantly enhanced by TJN-101. Besides, TJN-101 enhanced the increase in hepatic putrescine. These results suggest that TJN-101 stimulates liver regeneration after partial hepatectomy by enhancing ODC activity, which is an important biochemical event in the early stages of liver regeneration.

9302-0888 Kumar, V.P., Kuttan, G., Kuttan, R. (Amala Cancer Research Centre, Thrissur, Kerala) **Immunomodulatory activity of Septilin.** *Amala Research Bulletin*, v. 12: p. 49-51, 1992 (4 ref, Eng).

Administration of Septilin (Himalaya drug-Co.) was done in untreated animals as well as in the tumor bearing animals. The preliminary analysis indicated that Septilin was found to be non toxic and concentrations more than 100mg in hot water on alternate days for one month did not produce any toxic symptoms. Hemological analysis showed that Septilin increased the total counts of leukocytes as well as produced preferential increase in the polymorphonuclear cells. This indicated that administration of Septilin not only stimulated the leukocyte production but also increased their differentiation. Septilin was not found to be directly cytotoxic to tumor cells when added as either alcoholic or aqueous extracts. Administration of Septilin (100mg/animal on alternate days for one month) increased the survival of animals bearing Ehrlich ascites tumour. The ILS calculated was 70.6 percent. NSL, New Delhi.

9302-0889 Kuttan, G., Kuttan, R. (Amala Cancer Research Centre, Amala Nagar Thrissur 680 553, Kerala, India) **Immunomodulatory activity of a peptide isolated from *Viscum album* extract (NSC 635 089).** *Amala Research Bulletin*, v. 12: p. 29-34, 1992 (15 ref, Eng).

A peptide isolated from the *V. album* extract (Iscador) has been earlier reported to have cytotoxic and tumour reducing activity. Administration of the peptide (2 micro g/ml) was found to produce decreased natural killer cell activity (NK-activity) in the normal animals and tumour bearing animals, the peak activity was observed on 3rd day after the administration of the peptide. Administration of the peptide also stimulated antibody dependent cellular cytotoxicity (ADCC) which was expressed approximately on fourth day. There was also increased antibody forming cells in the spleen of animals treated with the peptide. Activity of the crude plant exextract coincided with the activity of the peptide indicating that the isolated peptide is mainly responsible for the immunostimulatory activity present in *V. album* exextract, Iscador. NSL, New Delhi.

9302-0890 Lee, H.S., Ahn, S.C., Kim, B.H., Park, M.S., Oh, W.K., Yoon, B.D., Ahn, J.S., Mheen, T.I. (Laboratory of Microbial Technology, Genetic Engineering Research Institute, KIST, P.O.Box 17, Daeduk Science Town, Daejeon 305-606, Korea) **Inhibitory activity against protein kinase C of some medicinal plants.** *Korean Journal of Pharmacognosy*, v. 23(3): p. 142-145, 1992 (16 ref, Eng, Kor).

MeOH extract of twenty medicinal herbs were screened for their effects against protein kinase C (PKC) using bleb-forming assay and PKC enzyme assay. *Smilax china* and *Sanguisorba officinalis* showed potent anti-PKC activity. *Campsis grandiflora* and *Galla halepensis* showed moderate inhibitory effect on PKC.

9302-0891 Lee, I.R., Song, J.Y., Lee, Y.S.* (Laboratory of Cancer Pathology, Korea Cancer Hospital, Seoul 139-240, Korea) **Cytotoxicity of folkloric medicine in murine and human cancer cells.** *Korean Journal of Pharmacognosy*, v. 23(3): p. 132-136, 1992 (7 ref, Eng, Kor).

The whole plants of *Selaginella tamariscina*, *Orostachys japonicus*, the cortex of *Ulmus mandshurica* and the wood of *Alnus japonica* have been used as folk medicine for treating cancer. The cytotoxic activity of these plants were tested using a colorimetric tetrazolium assay (MTT assay). *S. tamariscina* and *A. japonica* showed mild IC50 value, comparing with *O. japonicus* and *U. mandshurica*. So, MeOH extracts of *S. tamariscina* and *A. japonica* were partitioned into CHCl₃, EtOAc and n-BuOH, successively. The CHCl₃, EtOAc and BuOH fractions of *S. tamariscina* and *A. japonica* showed low percent of survival against P388 and

MKN45 cells respectively. The active component isolated from EtOAc extracts of *S. tamariscina* was identified as amentoflavone by chemical and spectral analysis. Amentoflavone inhibited the survival of P388 cells dose dependently, while not clearly inhibited that of MKN45 cells.

9302-0892 Li Hong (Tianjin Hexi Hospital, Tianjin, 300202, China) **Relationship between TCM differential types and plasma levels of renin, angiotension II, aldosterone, atrial natriuretic factor in patients with essential hypertension.** *Chinese Journal of Integrated Traditional and Western Medicine*, v. 11(5): p. 271-273, 1991 (4 ref, Eng).

130 cases of patients with essential hypertension (EH) and 70 cases of normal subjects were researched for correlation between TCM differential types and plasma levels of renin, angiotension II, aldosterone, atrial natriuretic factor (ANF) in patients with EH. Results indicated that: (1) basic level of renin was lower in patients with EH than that in normal subject. There were significant differences of plasma levels of renin between different TCM types. Plasma renin level of excessive Yang patients was higher than that in normal subject group and groups of deficiency of Yin essence combined with excessive Yang as well as deficiency of both Yin and Yang (P less than 0.01 to 0.001). Plasma level of angiotension II was significantly higher in group of excessive Yang than that in normal subject and other two groups (P less than 0.01 to 0.001). It was indicated that there were correlation between plasma basic level of renin, angiotension II and TCM types.

9302-0893 Lohiya, N.K., Goyal, R.B. (Reproductive Physiology Section, Department of Zoology, University of Rajasthan, Jaipur, India) **Evaluation of antifertility efficacy of *Carica papaya* seed extracts, fractions and compounds in male rats.** *Proc. of International Conference on Fertility Regulation, Bombay, Nov. 5-8, 1992*, (Eng).

Effects of crude extracts, chromatographic fractions and isolated compounds of *Carica papaya* seeds were investigated for antifertility activity in male rats. Crude extracts were administered at dose levels of 10 and 50 mg/body wt orally for 30, 60 and 90 days. Orally administered ethanolic extract was found to be effective in suppression of fertility of male rats. Crude chloroform extract, at daily oral dose of 5 mg/body wt for 20, 40 and 60 days, was found to be more effective. The motility of sperms was completely inhibited along with morphological changes following 60 days of treatment (No side effects were reported, and the effects were completely reversible).

9302-0894 Lutomski, J., Nieman, C., Fenwick, G.R. (Institute of Medicinal Plants, ul. Libelta 27, 61-707 Poznan, Poland) **Liquorice, *Glycyrrhiza glabra* L. biological properties.** *Herba Polonica*, v. 37(3-4): p. 163-178, 1991 (88 ref, Eng, Pol).

A detailed description of the anti-ulcer, anti-inflammatory, antibacterial and other pharmacologic properties of liquorice *Glycyrrhiza spp* and its products has been given. Toxicological and the legal status of glycyrrhizin in foods has also been dealt.

9302-0895 Lutterodt, G.D. (Department of Pharmacology, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia) **Inhibition of Microlax-induced experimental diarrhoea with narcotic-like extracts of *Psidium guajava* leaf in rats.** *Journal of Ethnopharmacology*, v. 37(2): p. 151-157, 1992 (16 ref, Eng).

Measurement of rates of propulsion in the small intestine in control and experimental groups of male Sprague-Dawley rats (200-250 g) were carried out as a means of assessing antidiarrhoeal activity of aqueous extracts of the leaf of *P. guajava*. Hyperpropulsion (diarrhoea) was induced by gavaging rats in a control group with Microlax, using phenol red mixed into it as a marker in the intestine, and the mean rate of the hyperpropulsion was determined. In experimental groups pretreated with enteral administration of either morphine or aqueous extracts, 1 h before the challenge with Microlax, the percentage inhibition to the hyperpropulsive rate (antidiarrhoeal activity) was calculated. Both morphine and the extracts produced a dose-response relationship in their antidiarrhoeal effects. A dose of 0.2 ml/kg fresh leaf extract produced 65 percent inhibition of propulsion. This dose is equiactive with 0.2 mg/kg of morphine sulphate.

9302-0896 Martin, N., Bardisa, L., Pantoja, C., Roman, R., Vargas, M. (Departamento de Ciencias Fisiologicas, Departamento de Farmacologia, Facultad de Ciencias Biologicas y de Recursos Naturales, Universidad de Concepcion, PO Box 2407, Concepcion, Chile) **Experimental cardiovascular depressant effects of garlic (*Allium sativum*) dialysate.** *Journal of Ethnopharmacology*, v. 37(2): p. 145-149, 1992 (13 ref, Eng).

The effects of a garlic dialysate on diastolic blood pressure (DBP), heart rate (HR) and electrocardiogram (ECG) of anaesthetized dogs and its effects on frequency and tension of isolated rat atria have been reported. Garlic dialysate led to a drop in DBP and a decrease in HR in a dose-dependent manner. The ECG showed a regular sinus bradycardic rhythm. The addition of garlic dialysate to isolated left rat atria evoked a decrease in tension develop-

ment. Frequency, measured by spontaneous beating of the right atria, was reduced. Both effects were dose dependent. In addition to these effects, the positive inotropism and chronotropism induced by addition of isoproterenol 10⁻⁹ M, were partially antagonized by preincubation of the rat atria with the garlic dialysate. The above findings have been explained by a depressant effect on automaticity and tension development in the heart, suggesting a beta-adrenoreceptor blocking action produced by the garlic dialysate.

9302-0897 Martis, G., Rao, A., Karanth, K.S. (Department of Biochemistry, Kasturba Medical College, Manipal 576119, Karnataka, India) **Neuropharmacological activity of *Herpestis monniera*.** *Fitoterapia*, v. 63(5): p. 399-404, 1992 (Eng).

The aqueous and alcoholic extracts of *H. monniera* whole plant did not provide complete protection to the rats from chemical or maximum electric shock induced seizures but reduced their severity. The extracts neither produced sedation and muscle incoordination nor have an antidepressant effect. However, they potentiated the barbiturate-induced hypnosis. The extracts significantly increased the pentylenetetrazole induced seizure latency.

9302-0898 Mary, K.T., Kuttan, G., Kuttan, R. (Amala Cancer Research Centre, Trichur, Kerala, India) **Screening and isolation of a tumor reducing component from *loranthus* extract.** *Amala Research Bulletin*, v. 12: p. 45-47, 1992 (9 ref, Eng).

Extract of botanically identified plant materials *Loranthus* species from 15 different host trees have been tested for cytotoxicity and only two of them were found to be positively cytotoxic, follow up, studies carried out by using plant extracts with confirmed activity and its partially purified materials indicated their cytotoxicity. Ehrlich ascites cells and Sarcoma-180 cells *vitro* and they also inhibited the growth of 29 cells in tissue culture. The partially purified materials reduced ascites tumours and solid tumours induced by Ehrlich ascites cells and Dalton's lymphoma ascites cells NSL, New Delhi.

9302-0899 Mehta, M.M., Faiyaz, H.K.M., Patel, S.B. (Pharmacology Division, Regional Research Institute of Unani Medicine, Byculla, Bombay 400008, Maharashtra, India) **Study of unani drug OAH4 as an antiulcer drug.** *Proc. 24th Indian Pharmacological Soc. Conference, Ahmedabad, Gujarat, Indian Dec. 29-31, 1991*, P1, (Eng).

After administration of the drug OAH4 in the dose of 1 gm/kg administered orally twice a day for three days, no sign of ulceration was observed in the stomach. However, in control group there was a clear spot of ulcer. A potential

antitumor activity of the drug OAH4 in rats has been discussed.

9302-0900 Morita, H., Yamamiya, T., Takeya, K., Itokawa, H.* (Department of Pharmacognosy, Tokyo College of Pharmacy, Horinouchi 1432-1, Hachioji, Tokyo 192-03, Japan) **New antitumor bicyclic hexapeptides, RA-XI, -XII, -XIII and -XIV from *Rubia cordifolia*.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1352-1354, 1992 (10 ref, Eng).

Four new bicyclic hexapeptides, named as RA-XI, -XII, -XIII and -XIV were isolated from *R. cordifolia* and showed potent antitumor activities against P-388. The structures were elucidated from spectroscopic and chemical evidences, RA-XII, -XIII and -XIV were proved to be unique bicyclic hexapeptidic glucosides.

9302-0901 Mraz, M., Opletal, L., Sovova, M., Drasar, P., Havel, M. (Department of Pharmacology, Medical School, Charles University, Albertov 4, 12800 Praha 2, Czechoslovakia) **Inhibition of Na⁺, K⁺-ATPase by the glycosides from *Coronilla varia*.** *Planta Medica*, v. 56(5): p. 467-468, 1992 (6 ref, Eng).

The glycosides hyrcanoside (1;HY) and deglucohyrcanoside (2;DHY) were isolated from the seeds of *C. varia*. Both the glycosides showed remarkable Na⁺, K⁺-ATPase inhibitory activity increasing the range 10⁻⁹ to 10⁻⁶ mol. l. Their activities lie between those of ouabain and dixitoxin. DHY being slightly more active than HY.

9302-0902 Murakami, A., Tanaka, S., Ohigashi, H., Hirota, M., Irie, R., Takeda, N., Tatematsu, A., Koshimizu, K. (Department of Food Science and Technology, Faculty of Agriculture, Kyoto University, Kyoto University, Kyoto 606, Japan) **Chalcone tetramers, lophirachalcone and Lophira alata as possible antitumor promoters.** *Bioscience, Biotechnology and Biochemistry*, v. 56(5): p. 769-772, 1992 (20 ref, Eng).

Two chalcone tetramers were isolated as inhibitors of Epstein-Barr virus (EBV) activation induced by a tumor promoter, telocidin B-4, from *L. alata*. One of them was identified as cophirachalcone. The other, named alatachalcone, was new, and the structures were determined by spectroscopic means. Both compounds exhibited potent inhibitory activities against telocidin B-4 induced inflammation on mouse ear. In an initiation-promotion experiment on mouse skin, alatachalcone (16 micromol) significantly inhibited tumor promotion caused by 12-O-tetradecanoylphorbol-13-acetate (TPA, 1.6 micromol).

9302-0903 Nakamura, K., Tsuchiya, S., Sugimoto, Y., Sugimura, Y., Yamada, Y. (Tochigi Research Laboratories,

Kao Corporation, 2606 Akabane, Ichikai-machi, Tochigi 321-34, Japan) **Histamine release inhibition activity of bisbenzylisoquinoline alkaloids.** *Planta Medica*, v. 58(6): p. 505-508, 1992 (15 ref, Eng).

Eleven bisbenzylisoquinoline alkaloids (head-to-head; 10, head-to-tail; 1) and one half molecule type (N-methylcoclaurine), were tested by in vitro histamine release inhibition assay. The order of the potency of the inhibitory effect was ranked thus: homoaromoline, aromoline, isotetrandrine, cepharanthine, fangchinoline, obaberine, and tetrandrine. The following substances, cepharanoline, berbamine, oxyacanthine, and cycleanine (head-to-tail structure) had no inhibitory effect. N-Methylcoclaurine showed an inhibitory effect comparable to that of fangchinoline. Aromoline was isolated from the cultured roots of *Stephania cepharantha* and Cepharanoline, cepharanthine, cycleanine, and isotetrandrine were isolated and purified from an extract of tubers of *S. cepharantha*.

9302-0904 Naora, K., Ding, G., Hayashibara, M., Katagiri, Y., Kano, Y., Iwamoto, K. (Department of Pharmacy, Shimane Medical University, Hospital, Enya-cho, Izumo 693, Japan) **Pharmacokinetics of {6}-gingerol after intravenous administration in rats with acute renal or hepatic failure.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1295-1298, 1992 (15 ref, Eng).

The pharmacokinetics of {6}-gingerol obtained from the rhizomes of ginger (*Zingiber officinale*) were investigated in rats with acute renal failure induced by bilateral nephrectomy, or those with acute hepatic failure induced by a single oral administration of CCl₄ to clarify the contribution of the kidney and liver to the elimination process of {6}-gingerol. After bolus intravenous administration, a plasma concentration-time curve of {6}-gingerol was illustrated by a two-compartment open model. There was no significant difference in either the plasma concentration-time curve or any pharmacokinetic parameters between the control and nephrectomized rats. It is suggested, therefore, that renal excretion does not contribute at all to the disappearance of {6}-gingerol from plasma in rats. In contrast, hepatic intoxication with CCl₄ elevated the plasma concentration of {6}-gingerol at the terminal phase. Its elimination half-life increased significantly, from 8.5 to 11.0 min, in CCl₄-intoxicated rats. The extent of {6}-gingerol bound to serum protein was more than 90 percent and was affected very slightly by the CCl₄-intoxication. These aspects indicate that {6}-gingerol is eliminated partly by the liver.

9302-0905 Nishiyama, N., Wang, Y.L., Kaimori, J., Ishihara, A., Saito, H. (Department of Chemical Pharmacology, Faculty of Pharmaceutical Sciences, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113, Japan) **Biota**

(Po-Tzu-Jen), a traditional Chinese medicine, ameliorates the memory acquisition disorder induced by amygdala lesion in mice. *Phytotherapy Research*, v. 6(6): p. 289-293, 1992 (10 ref, Eng).

The effects of *Biota orientalis*(biota), on learning performances were investigated. Biota (250 and 500 mg/kg/day) was administered orally from the day of the lesion until the end of the experiment. Lesioned animals showed severe impairment in the acquisition and retention processes. Biota ameliorated the memory acquisition deficit. The number of step-down events in the acquisition and in the first testing trial was significantly decreased. Moreover, the mean number of days required to reach the memory acquisition criterion was markedly earlier in biota treated groups than in the lesioned control and almost similar to that in the naive control. Biota did not, however, alter the memory retention, choline acetyltransferase activity in the cortex, hippocampus and hypothalamus, and microscopic pathological changes induced by amygdala lesion. From these results it indicated that the memory acquisition enhancing effect of biota may not be due to a direct activation of cholinergic transmission in those areas nor to a mitigation of the pathological damage of the lesioned site but due to other unknown mechanisms.

9302-0906 Okamura, N., Sato, M., Yagi, A., Tanonaka, K., Takeo, S.(Faculty of Pharmacy and Pharmaceutical Sciences, Fukuyama University, Fukuyama, Hiroshima 729-02, Japan) **An application of HPLC for identification of abietane-type pigments from *Salvia miltiorrhiza* and their effects on post-hypoxic cardiac contractile force in rats.** *Planta Medica*, v. 58(6): p. 571-573, 1992 (8 ref, Eng).

The identification of the new compound tanshinonal (1) as well as 3- α -hydroxymethylenetanshinquinone (2), 1-hydroxytanshinone II(3), methyl tanshinonate (4) and their effects on post-hypoxic recovery of cardiac contractile force in rats hearts have been reported. 16 percent recovery of the post-hypoxic contractile force was seen when hearts were treated with 500 micro M of compound (2), whereas no improvement was observed in perfused rat hearts treated with (1),(3) and (4).

9302-0907 Oliva, O., Rez, G.*, Palfia, Z., Fellingner, E. (Department of General Zoology, Eotvos Lorand University, PO Box 330, H 1445, Budapest, Hungary) **Time course of vinblastin-induced cellular autophagy in the murine pancreatic acinar cells in vivo. Different regression rates of the autophagic compartment caused by cycloheximide given different times after the Vinca alkaloid. A morphometric study.** *Acta Biologica Hungarica*, v. 42(1-3): p. 119-126, 1991 (13 ref, Eng).

Mice were treated with 10 mg/kg b.wt. vinblastin (VBL) an alkaloid from *Vinca rosea* and followed morphometrically the quantitative changes of the autophagic vacuole compartment (AVC) by taking samples of pancreas at each half an hour. Two waves of expansion of AVC after single injection VBL were observed. In order to obtain data for rates of degradation process injection of cycloheximide was given to VBL treated mice during the expansion phase of both first and the second wave (i.e. at 1 and 3 hour after VBL) and took samples for morphometry in each half an hour during the next 90 min. after the onset of the inhibitor. The consecutive regression of the AVC and of its subcompartments were again followed by morphometry. Results are reported and discussed.

9302-0908 Onyeneho, S.N., Hettiarachchy, N.S.(Department of Cereal Science and Food Technology, North Dakota State University, Fargo, North Dakota 58105, USA) **Antioxidant activity of Durum wheat bran.** *Journal of Agricultural and Food Chemistry*, v. 49(9): p. 1496-1500, 1992 (19 ref, Eng).

Freeze-dried extract from durum wheat bran exhibited stronger antioxidant activity than extracts from other milling fractions. At 9 h under active oxygen method (AOM) conditions, peroxide value (PV) determinations showed that oil with the bran extract had a PV of 38.0 Mequiv/kg while the control oil had a PV of 129.0 Mequiv/kg. Extracts from the bran fractions of six durum wheat varieties had similar antioxidant activities in soy oil (PV 37.6-42.0 Mequiv/kg). High performance liquid chromatographic and thin-layer chromatographic analyses of the durum wheat bran extract revealed the presence of protocatechuic, p-hydroxybenzoic, gentisic, caffeic, vanillic, chlorogenic, syringic, p-coumaric and ferulic acids. Among the identified free phenolics, ferulic, vanillic, and p-coumaric acids were present in the highest amounts. The phenolic acids also appear to be partially responsible for the antioxidant activity of the extract.

9302-0909 Padhya, S.P., Saraf, A.P., Mulay, M.S.(Department of Pharmacology, Grant Medical College, Byculla, Bombay 400 008, Maharashtra, India) **hepatoprotective effect of Detoxina in drug induced hepatic dysfunction.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8: p. 83, 1992 (Eng).

Herbal preparation, Detoxina significantly decreased OT & P.T, increased hepatic Glutathione levels and inhibited lipid peroxidation in experimental rats. The hepatoprotective activity of the drug has been attributed to increase in the Glutathione levels.

9302-0910 Padma, P., Khosa, R.L., Joshi, V.K., Chansauria, J.P.N (Department of Pharmaceutics and Experimental Surgery, Banaras Hindu University, Varanasi 221005, UP, India) **Experimental studies on *Mollugo stricta*-A possible antifertility drug.** *Indian Drugs*, v. 29(14): p. 649-650, 1992 (6 ref, Eng).

The effect of the alcoholic extract of the whole plant of *Mollugo stricta* on the estrous cycle of female albino rats was studied. The drug induced an irregular estrous cycle with its different phases getting abolished at random. With in the estrous cycle it induced a reduction in the duration of the estrous phase to almost half without showing any appreciable change in the duration of other phases. The intermittent omission of the estrous phase coupled with the reduction of its duration suggests the drug to possess some antifertility effect.

9302-0911 Pal, S., Nag, A.K., Chaudhuri, N.(Division of Pharmacology, Department of Pharmaceutical Technology, Jadavpur University, Post Box No. 17013, Calcutta 700 032, WB, India) **Further studies on the anti-inflammatory profile of the methanolic fraction of the fresh leaf extract of *Bryophyllum pinnatum*.** *Fitoterapia*, v. 63(5): p. 451-459, 1992 (29 ref, Eng).

The methanolic fraction of the fresh leaf extract of *B.pinnatum* showed significant antiinflammatory activity on different experimental models e.g. carrageenin-induced granuloma, primary irritation, picryl chloride and oxazolone-induced delayed hypersensitivity inflammation and monosodium urate-induced gout. The leaf extract significantly decreased the activity of SGOT, SGPT, as well as hydroxyproline concentration and increased ATPase concentration. The inhibitory effect on arachidonic acid and glucose oxidase-induced inflammation suggest that almost definitely the *B.pinnatum* leaf extract is not a cyclo-oxygenase inhibitor.

9302-0912 Pande, S.B., Sharma, S.(Sangyahan Section, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India) **Role of ashwagandha in Sangyabaran (Anaesthesia)- an experimental study.** *International Seminar- Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 116, (Eng).

Ashwagandha is a well known indigenous drug, used as a powerful and potent central nervous system depressant drug in mental disorders like unmada and apasmara. Thus an experimental study was performed on albino rats to determine the effective dose of the trial drug (alcoholic extract of Ashwagandha) and also to confirm the neuropharmacological actions. Further experiment on albino rats was conducted to see the usefulness of this trial drug in anaesthesia practice also. So far the CNS depressant drugs like

sedatives and tranquillizers have always been important constituents in the anaesthetist's armory. This study was carried out to find out the potentiating effect of the trial drug if any, of ether anaesthesia. Abstr. No. P 7.24).

9302-0913 Pandey, D., Bisht, M., Sing, Y.N.(Reproductive Biology Laboratory, Department of Zoology, Kumaun University, Almora 263501, UP, India) **The antiestrogenicity of *Hibiscus rosa-sinensis* flowers on female rats.** *Himalayan Journal of Environment and Zoology*, v. 6(1): p. 50-55, 1992 (12 ref, Eng).

Alcoholic extract of *H.rosa-sinensis* flowers administered to female wistar rats @.4 ml/day/rat and .2ml/day/rat for 7 and 15 day respectively exhibited antifertility activity. Administration of the extract showed reduction in wet weight of the gonads, interruption in oestrus cycle and atrophic changes in the uterine glands and vagina showing antiestrogenic activity.

9302-0914 Panossian, A.G.(Department of Medicinal Chemistry and Biochemical and Pharmacology, Institute of Medical Radiology, Davidashen, p/b 25, Erevan 36, ISU, Armenia) **Medicinal Plants and Eicosanoids system.** *International Seminar-Traditional Medicine, Calcutta, 7-9, WB, November, 1992* (Eng).

It was demonstrated that biological activity of many natural compounds, eg. salicylates, flavonoids, coumarines, alkaloids, curcubitacins, glycosides, hydroxy fatty acids etc is associated with the biosynthesis and reception of eicosanoids in mammalian cells. The possible explanation of why some medicinal plants are used for the treatment of many diseases, could be in the multiple effects of their active principles (eg. cucurbitacins and trihydroxyoctadecadienoic acids the active substances of *Bryonia alba* roots of on eicosanoid system. The distinguishing feature of the traditional medicines in twentyfirst century should consist, in the selection of plant compositions, based on the knowledge of the modes of action of their components, acting synergistically Abstr. No. PL 16.

9302-0915 Patnaik, K., Shukla, B., Visen, P.K.S., Tripathi, S.C., Dayal, R., Srimal, R.C.(ICMR Centre for Advanced Pharmacological Research on Traditional Remedies, Division of Pharmacology, Central Drug Research Institute, Lucknow 226 001, UP, India) **Hepatoprotective activity of ursolic acid isolated from *Eucalyptus tereticornis*.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. 40, (Eng).

Hepatoprotective activity ursolic acid isolated from the leaves of *Eucalyptus* hybrid *E.tereticornis* was assessed using various in vivo and ex vivo test models in rat and guinea pig. Pretreatment (5 to 20 mg/kg p.o.x. 7) with the

compound showed a dose-dependent cholerectic activity. Significant anticholestatic activity (23 to 100 percent) was observed against paracetamol, galactosamine and CCl₄ induced cholestasis. An increase in bile volume as well as the bile contents was observed. The compound showed marked hepatoprotective activity against these hepato-toxins by reversing the altered values in viability of hepatocytes and the biochemical changes in liver (including isolated hepatocytes) and serum parameters. A complete reversal was noticed at the 20 mg/kg dose level. The activity of ursolic acid compared well with silymarin, a known hepatoprotective drug.

9302-0916 Pei, J.S., Tong, B.L., Chen, K.J., Li, C.S., Zhang, G.X. (Institute of Space Medico Engineering, Beijing 100094, China) **Experimental research on antimotion sickness effects of Chinese medicine "Pingandam" pills in cats.** *Chinese Medical Journal*, v. 105(4): p. 322-327, 1992 (15 ref, Eng).

A study was undertaken to compare the effects of Pingandan with those of scopolamine and dramamine on motion sickness and nystagmus in cats. The doses were scopolamine (1mg), dramamine (25 mg) Pingandan 50x, 30x, 10x of 0.45 gm/kg. The results show that Pingandan 50x and scopolamine 1mg were more effective in reducing MS symptoms and suppressing slow phase velocity of nystagmus while pingandan 30x significantly reduced MS symptoms only. Pingandan 10x and dramamine 25 mg had not anti MS effect.

9302-0917 Prakash, A.O., Mehta, H., Mathur, R. (School of Studies in Zoology, Jiwaji University, Gwalior 474 001, MP, India) **Assessment of reproductive toxicity of Datura seeds in female rats.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8: p.81, 1992 (Eng).

Aqueous extract of seeds of *Datura* spp exhibited ponderae changes in ovary and uterus. Uterine histological features were remarkably changed. Total proteins, glycogen and activity of acid and alkaline Phosphatase in these organs showed significant changes.

9302-0918 Prasad, H.C., Chakraborty, R. (Department of Pharmacology, Gauhati Medical College, Guwahati 781032, Assam) **Acorus calamus, Linn. - A medicinal plant having hypotensive activity in experimental study.** *International Seminar-Traditional Medicine, Calcutta*, 7-9 November, p. 157, 1992 (Eng).

Present investigation deals with a study on hypotensive effect of *A. calamus*. The rhizome extract had produced a hypotensive response in dog BP. It also exerted tranquilizing action but was less potent than chlorpromazine.

There is a possibility to develop it into hypotensive agent but further studies are needed to assess its role as antiepileptic, antiasthmatic and anticarcinogenic agent. (Abstr.No. P. 9.16).

9302-0919 Prasad, H.C., Majumder, R., Chakraborty, R. (Department of Pharmacology, Guwahati Medical College, Guwahati 781032, Assam, India) **Hypoglycaemic and antihyperglycaemic effect of medicinal plant from Assam.** *International Seminar-Traditional Medicine, Calcutta* 7-9 November, p.158, 1992 (Eng).

Extract of *Tinospora cordifolia* had been investigated for hypoglycaemic and antihyperglycaemic effects in normal and diabetic rats. Extract administered orally by intubation in the dose of 20mg/100 g body weight showed a moderate hypoglycaemic effect. Propranolol, insulin and tolbutamide in combination with *T. cordifolia* had synergistic effect. Extract also included a significant fall in glycaemic levels in rats with glucose induced hyperglycaemia. It showed antihyperglycaemic effect on moderate alloxan diabetic rats with blood sugar not exceeding 400mg. dl, but was ineffective in severe alloxan diabetic rats (Abstr. No. P. 9.17).

9302-0920 Puri, A., Saxena, R.P., Sumati, Guru, P.Y., Kulshreshtha, D.K., Saxena, K.C., Dhawan, B.N. (ICMR Centre for Advanced Pharmacological Research on Traditional Remedies, Central Drug Research Institute, Post Box No. 173, Lucknow 226001, UP, India) **Immunostimulant activity of picroliv, the iridoid glycoside fraction of Picrorhiza kurroa, and its protective action against Leishmania donovani infection in hamsters.** *Planta Medica*, v. 58(6): p. 528-532, 1992 (20 ref, Eng).

Oral administration of Picroliv, a standardised fraction from root and rhizome of *P. kurroa* (10 mg/kg x 7 days) in mice prior to immunization with sheep red blood cells (SRBC) resulted in a significant increase in haemagglutinating antibody (HA) titre, plaque forming cells (PFC), and delayed hypersensitivity (DTH) response to SRBC. Picroliv enhanced the non-specific immuneresponse characterized by an increase in macrophage migration index (MM), [¹⁴C]-glucosamine uptake, phagocytosis of [¹⁴C]-leucine labelled *Escherichia coli*, chemiluminescence of peritoneal macrophages, and higher uptake of [³H]-thymidine in the lymphocytes of treated mice. It also induced a high degree of protection in golden hamsters against challenge infection with *L. donovani* promastigotes.

9302-0921 Rahman, H. (Pharmacological Research Unit, CCRUM, Aligarh Muslim University, Aligarh, UP, India) **Pharmacological investigation of Atrilal Ammi majus Linn.** *Proceedings of 25th Asian Pharmacological Society*

Conference, Muzaffarpur, Bihar, India, v. December 5-8: p.82, 1992 (Eng).

Water soluble fraction of acetone extract of *A.majus* seeds exhibited some hypotensive, negative inotropic, chromotropic and spasmolytic activities in experimental animals.

9302-0922 Ramesh Chander, Kapoor, N.K. , Dhawan, B.N.(Division of Biochemistry, Central Drug Research Institute, Lucknow 226001, UP, India) **Picroliv: a biological antioxidant.** *Proc. 24th Indian Pharmacol.Soc.Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. A41, (Eng).

Picroliv, the active principle of *Picrorhiza kurrooa* has been reported as a potent hepatoprotective agent and provided protection against hepatitis B virus. In vitro oxygen free radical scavenging property of picroliv has been reported. Picroliv inhibited the generation of superoxide anions in both enzymic and non enzymic system as measured by uric acid formed and reduction of nitro blue tetrazolium. It also provided protection against the malonaldehyde formation in microsomes by both non enzymic and enzymic reaction. The antioxidant action of picroliv was comparable to that of alpha-tocopherol but not with BHA. Antioxidant property of picroliv was found to depend on breaking chain of formation of free radicals at the level of oxygen anions, possibly by its behaviour like superoxide dismutase, inhibitor of xanthine-oxidase and metal ions chelator.

9302-0923 Rangari, V.D., Agrawal, S.R.(Pharmacognosy Division, College of Pharmacy, Gangapur Road, Nashik 422 002, Maharashtra, India) **Chemistry & pharmacology of *Psoralea corylifolia*.** *Indian Drugs*, v. 29(15): p. 662-670, 1992 (52 ref, Eng).

Review on chemical constituents of *Psoralea corylifolia* has been given, Antileucodermal, antimicrobial, anthelmintic, antiinflammatory, antipyretic, analgesic, antimutagenic and cytotoxic activities alongwith some chemical results of the plant have been reported.

9302-0924 Rashid, Md, Karim, V., Ahmed, M. , Choudhury, A.R. (Department of Pharmacy, University of Dhaka, Dhaka, Bangladesh; Department of Pharmacology, IPGMR, Dhaka, Bangladesh) **Antihypertensive activity of *Eclipta alba*.** *International Seminar-Traditional Medicine, Calcutta 7-9 November*, p. 134, 1992 (Eng).

The ethanolic extract of the dried whole plant *E.alba* and its active constituent cuminum exhibited remarkable antihypertensive activity on anaesthetized cats. No significant side effects or toxicities have been found either no histopathology of liver, kidney, spleen, heart or on

biochemical parameters like SGOT, SGPT, BUN, etc. Moreover, no appreciable changes have been found to body weight and in specific organ weight during the course of investigation on Long evans rats. (Abstr. No. 8.16).

9302-0925 Rastogi, R., Dwivedi, Y., Garg, N.K., Dhawan, B.N.(ICMR Centre for Advanced Pharmacological Research on Traditional Remedies, Division of Biochemistry, Central Drug Research Institute, Lucknow 226001, UP, India) **Perfusion of rat liver with picroliv reverses enzyme changes induced by D-galactosamine or thioacetamide.** *Proc. 24th Indian Pharmacol.Soc.Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. P-2, (Eng).

Reversal of enzymic changes in liver toxicated with D-galactosamine or thioacetamide by perfusion with Picroliv (6 mg/rat) is reported. Toxicants induced elevation in activities of gamma glutamyl transpeptidase, alkaline phosphatase, acid ribonuclease and depletion in activity of Na⁺-K⁺-ATPase were significantly reversed. In galactosamine-toxicated rats, increase in activities of acid phosphatase, succinate dehydrogenase and decrease in activity of glucose-6-phosphatase also came towards their normal level by picroliv, while in thioacetamide-toxicated rats, decrease in activities of Ca²⁺, Mg²⁺-ATPases and succinate dehydrogenase was also significantly reversed. In addition, decrease in protein synthesis as evidenced by ¹⁴C-leucine incorporation, caused by these toxicants was also significantly restored by perfusion with Picrolic.

9302-0926 Raut, A.M.(Department of Toxicology, R.A. Poddar Ayurvedic Medical College, Worli, Bombay 400 018, India) **Toxicology in Ayurveda.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 79, 1992 (Eng).

Agad Tantra or toxicology is one of the eight specialities of Ayurveda. Poisons were classified into natural and synthetic. Natural poisons were further classified into those from plant sources and from animal sources. Pharmacodynamics of various groups of poison is also described in detail. Based on these considerations clinical manifestation, and therapeutic modalities are described. There are also references to the use of poisons in the therapy. Many of these poisons are still used particularly in rural India for homicidal or suicidal purposes. Presently, ayurvedic practice of toxicology is almost extinct. A part from the descriptions in standard texts there are quite a few references of successful use of antidotes in the treatment of poisoning in the manuscripts of ayurvedic physicians. Some studies in this directions have given new pharmacological agents like isolation of perezoside and other cardiotonic glycosides from *Thevetia neriifolia*. A brief review of classical literature will be presented in detail. (Abst No. IL7B).

9302-0927 Rauwald, H.W., Kober, M., Mutschler, E., Lambrecht, G. (Institute of Pharmaceutical Biology, University of Frankfurt, Georg-Voigt-Str, 16, D(W)-6000 Frankfurt/M.11. Federal Republic of Germany) **Cryptolepis sanguinolenta: Antimuscarinic properties of cryptolepine and the alkaloid fraction at M1, M2 and M3 receptors.** *Planta Medica*, v. 58(6): p. 486-488, 1992 (18 ref, Eng).

From an ethanol extract of the roots of *C.sanguinolenta* the alkaloid fraction and its main constituent cryptolepine were isolated. Cryptolepine was identified mainly by EI-MS and ¹H/¹³C-NMR spectroscopy. Cryptolepine (3-30 micro M) and the alkaloid fraction (3-10 micro/ml) antagonized muscarinic effects at M1 receptors in rabbit vas deferens, M2 receptors in guinea-pig atria, and M3 receptors, M2 receptors in guinea-pig atria, and M3 receptors in guinea-pig ileum. The experiments, using N-methyl atropine as reference drug, showed a significant antimuscarinic activity for both cryptolepine and the alkaloid fraction. Cryptolepine was determined as the antimuscarinic principle.

9302-0928 Ray, A. (Department of Pharmacology, University College of Medical Science, Shahdara, Delhi 110095, India) **Anti-stress effects of some indigenous drugs: Role of dopamine.** *International Seminar-Traditional Medicine*, 7-9 November, p.99, 1992 (Eng).

The CNS and its neural mechanisms regulate stress responsiveness and the protective influence of dopamine (DA) during such aversive stimuli is widely suggested. The possible role of DA in the mediation of the anti-stress effects of *Ocimum sanctum* (OS), *Panax ginseng* (PG) and *Azadirachta indica* (AI) in rats was evaluated. The effects of (a) restraint stress (RS), (b) its modulation by OS, PG or AI, and (c) their interactions DA, were investigated on gastric ulcerogenesis and humoral immune responsiveness. RS (24h at RT) induced gastric mucosal lesions and this was attenuated by OS, PG or AI (at 100mg/kg, ip), by differing degrees. These results will be discussed in light of a possible DA-ergic involvement in the anti-stress effects of the indigenous drug studies (Abstr. No. IL 13C).

9302-0929 Ray, N.M., Ray, R., Mukherjee, B. (Department of Pharmacology, University College of Medicine, Calcutta University 700 006, WB, India) **Studies on the muscle-relaxant action of *Chenomorpha macrophylla*.** *Proc. 24th Indian Pharmacol.Soc.Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. A12, (Eng).

Petrol ether and alcoholic extract of *C.macrophylla* termed as drug-1 drug-2 exhibited depolarising type of neuromuscular blocking action. This was evidenced by their effects on isolated and in situ nerve muscle preparations and on chicks. In all the studies drug-2 was found to be more potent than drug-1.

9302-0930 Repasi, J., Frank, L. (Alkaloida Vegyeszeti Gyar Rt., Tiszavasvari) **Analytical and biological standardisation of *Prunus avium* extracts.** *Acta Pharmaceutica Hungarica*, v. 62(4): p. 172-181, 1992 (18 ref, Eng, Hun).

Acetone extracts of *Prunus avium* (Cherry) exhibited cardiotonic activity. Reverse phase HPLC yielded flavonones flavones, isoflavone and their glycosides. Experiments on isolated heart preparations, demonstrated that the *Prunus avium* extracts improve the heart muscle contraction, without affecting electrophysiological parameters and heart rate.

9302-0931 Roy, U., Mukhopadhyay, S., Poddar, M.K., Mukherjee, B.P. (Department of Pharmacology, University College of Medicine, 244B, Acharya JCBose Road, Calcutta 700 020, India) **Evaluation of antistress activity of Indian medicinal plants, *Withania somnifera* and *Ocimum sanctum* with special reference to stress induced stomach ulcer in albino rats.** *International Seminar- Traditional Medicine, Calcutta, 7-9 November 1992*, p. 141, (Eng).

Traditionally the antistress activity of *W.somnifera* (Aswagandha) and *O.sanctum* (Tulsi) is well recognised. The present study was designed to evaluate their protective/inhibitory effect on stress induced gastric-ulcer in albino rat. Classical method of immobilization stress was adopted in pretreated rat (5, 10 and 20 mg/kg p.o. of drugs) for 3, 7 and 14 days and respectively in separate groups. Macroscopical and histopathological findings such as congestion, erosion, discrete and multiple haemorrhages, ulcers and perforation in the control group of rats served for scoring the intensity of the lesions. Significant decrease of scoring of pretreated rats indicated protective action of these herbal extraction. (Abstr. No. P 8.26).

9302-0932 Sakurai, K., Hosomi, K., Arakawa, T., Uzawa, M., Ito, Y. (Lotte Central Laboratory Company Limited; 3-1-1, Numakage, Urawa-shi, Saitama 336, Japan) **Isolation and characterisation of an allergy inhibition from the Jelutony, *Dyera Costulata* Hook f..** *Bioscience, Biotechnology and Biochemistry*, v. 50(6): p. 975, 1992 (6 ref, Eng).

Isolation and characterisation of anti-allergic substance from methanol extracts of Jelutony *Dyera costulata* has been reported. The compound has been characterized as 1,3-di-O-methyl myoinositol, named dambonitol.

9302-0933 Samal, K.K. (Department of Medicine, MKCG Medical College Berhampur, Dist. Gaujam, Orissa, India) **Epidemic dropsy due to contaminated till oil.** *Antiseptic*, v. 89(10): p. 540-542, 1992 (3 ref, Eng).

Four patients of one family reported to have developed dropsy on consumption of till oil contaminated with *Argemone mexicana*. All had oedema feet, midsystolic murmur over pulmonary areas, non tender hepatomegaly, anaemia high erythrocyte sedimentation rate, hypercholesterolaemia and normal serum protein. All were put under hospital diet and were advised bed rest. In the beginning Oedema subsided in the morning and aggravated during walking and after rice diet. After four weeks all symptoms disappeared and erythrocyte sedimentation rate became normal. NSL, New Delhi.

9302-0934 Saraf, S., Dixit, V.K., Tripathi, S.C., Patnaik, G.K. (Department of Pharmaceutical Sciences, Dr. Harisingh Gour Vishwavidyalaya, Sagar 470 003 India) **Hepatoprotective activity of *Tridax procumbens*. Part III..** *Fitoterapia*, v. 63(5): p. 414-416, 1992 (16 ref, Eng).

The ethanolic extract of aerial parts and its chloroform insoluble fraction of *T. procumbens* were studied in rats against thioacetamide challenge, and were found effective at the oral dose of 100 mg/kg as hepatoprotective as evidenced by biochemical parameters, i.e SGPT, SGPT, SACP, SALP and GDH. The chloroform soluble fraction of the ethanolic extract was inactive.

9302-0935 Saraswat, B., Viaen, P.K.S., Patnaik, G.K., Dhawan, B.N. (ICMR Centre for Advanced Pharmacological Research of Traditional Remedies, CDRI, Lucknow 226 001, UP, India) **Preventive effect of Picroliv against various hepatotoxins: In vitro study on primary cultured rat hepatocytes.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8: p. 82, 1992 (Eng).

Compound herbal preparation, Picroliv showed significant preventive activity (29-100 percent) against hepatotoxins. Complete protection was noticed at 100 micro g/ml.

9302-0936 Saxena, A.M., Bajai, M.B., Murthy, P.S.R., Mukherjee, S.K. (Division of Toxicology, Central Drug Research Institute, Lucknow 226001, UP, India) **Mechanism of blood sugar lowering by swerchirin-containing hexane fraction (SWI) of *Swertia chirayita*.** *Indian Journal of Experimental Biology*, v. 31(2): p. 178-181, 1993 (24 ref, Eng).

Single oral administration of swerchirin (SWI) isolated from the hexane fraction of *S. chirayita* (50mg/kg. body wt) to fed CF rats induced about 60 percent fall in blood glucose by 7 hr post-treatment. This was associated with marked depletion of aldehyde-fuchsin stained beta-granules and immunostained insulin in the pancreatic islets. In vitro, glucose uptake and glycogen synthesis by muscle

(diaphragm) was significantly enhanced by the serum of SWI-treated rat. At 100, 10 and 1 micro M final concentration, SWI greatly enhanced glucose (16.7 mM)-stimulated insulin release from isolated islets. It is therefore concluded that SWI lowers blood glucose level by stimulating insulin release from islets of Langerhans.

9302-0937 Saxena, K.C. (Division of Biochemistry, CDRI, Lucknow 226 001, UP, India) **Immunomodulators from plants and their use in prophylaxis and therapy.** *Proceedings 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8: p. 43, 1992 (Eng).

Immunostimulant activity of twelve plant drugs including *Asparagus racemosus*, *Picrorhiza kurroa*, *Nyctanthes arborescens*, *Andrographis paniculata* and *Curculigo orchioides*, antileishmanial activity of *P. kurroa* and *N. arborescens* and hepatoprotective activity of *A. paniculata* have been reported. Biological materials have also been reported.

9302-0938 Shanbhag, S.P., Joglekar, S.N., Saraf, A.P. (Department of Pharmacology, Grant Medical College, Byculla, Bombay-400008, Maharashtra, India) **Effects of 'Hepatograd' a compound herbal formulation in ethanol induced liver damage in albino rats.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India December 29-31, 1991*, PA41, (Eng).

'Hepatograd' a compound herbal formulation was evaluated for its protective effect against ethanol induced liver damage in albino rats. Prophylactic and therapeutic administrations of 'Hepatograd' could reverse rise in biochemical markers of liver damage of transaminases. Alkaline phosphatase, cholesterol, LDH, GSH and lipid peroxides as compared to control group. Liver Histology also confirms the hepatoprotective activity.

9302-0939 Sharma, J.D., Kamal, R. (Laboratory of Reproductive Physiology, Dept. of Zoology, University of Rajasthan, Jaipur, Rajasthan, India) **Antifertility effect of steroidal fraction of fenugreek seeds on female albino rats.** *Proc. of International Conference on Fertility Regulation Nov. 5-8, 1992, Bombay, India*, (Eng).

Fenugreek *Trigonella foenum-graecum* activity in female albino rats. The steroidal fraction was fed orally to the animals in doses of 50 and 100 mg per day for 12 days. The incidence of absence of implantation was taken as antifertility index plants. In control group the fertility rate was 90 percent positive and average implants were 8.4, whereas in treated groups the dose of 50mg reduced the average implants but fertility rate was unaffected but 100 mg dose reduced the average implants upto 0.2 and a decline

in fertility rate to 20 percent. The bioassay of the drug on ovariectomised young animals also suggested antiestrogenic nature of the drug.

9302-0940 Sharma, K., Vali Pasha, K., Dandiya, P.C. (F/o Science, Department of Pharmacology, Jamia Hamdard, Hamdard Nagar, New Delhi-110062, India) **Effect of Boerhaavia diffusa on behavioural biochemical and pathological manifestations of stress.** *Proc. 24th Indian Pharmacol Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, PA 3, (Eng).

Experiments were conducted on male albino rats/mice to evaluate the effect of *B. diffusa* on the open field activity (OFB) emotional and aggression response (Behavioural), GABA and glutamate levels in the cerebral cortex, cerebellum, brain stem and hypothalamus of rat brain (Biochemical) and gastric ulcerogenesis (pathological) in rats. The drug showed a stress protective effect by an improvement in the GABA levels and normalization of OFB upto 1 hr; protection from haemorrhagic ulcers and antagonism of the same by Ro15-1788, clearly pointed GABAergic involvement in the anti-stress activity of the drug.

9302-0941 Sharma, K.P., Kushwaha, H.K. (National Institute of Ayurveda, Jaipur 302002, Rajasthan, India) **Traditional treatise of vegetable poisoning.** *Sachitra Ayurved*, v. 43(3): p. 206-207, 1992 (3 ref, Eng).

Symptoms and management of poisoning caused due to various plant materials have been discussed.

9302-0942 Sharma, O.P., Vaid, J. (IVRI, Regional Research Station, Palampur, HP, India) **Lantana poisoning-the problem, nature of toxins and management.** *VET*, v. 3(3): p. 83-89, 1991 (30 ref, Eng).

Lantana *Lantana camara* poisoning of grazing animals causes substantial economic losses to farming. The toxicity symptoms are anorexia, constipation, jaundice, and photosensitisation. The largest organ of lantana toxins is liver and they cause cholestasis and hepatotoxicity. Lantadene A and C, the pentacyclic triterpenoids compounds present in lantana leaves are the active principles which elicit hepatotoxicity, which manifests itself in three phases viz., gastrointestinal, hepatic and post hepatic. The treatment include, aversion therapy i.e. conditioning of animals, vaccination. No rational therapy based on structure of lantana toxins and molecular mechanism of their action is available. NSL, New Delhi.

9302-0943 Shou, Z., Li, Ge-e, Song-min (Institute of Pharmaceutical Chemistry, Beijing 102205, China) **Purification and characterization of cochinchinin.** *Acta*

Biochimica et Biophysica sinica, v. 24(4): p. 311-316, 1992 (8 ref, Chi, Eng).

Cochinchinin was separated and purified from the seed extract of *Momordica cochinchinensis* by precipitation and column chromatography. It proved to be homogenous by SDS-PAGE with a molecular weight of 2900, pl value of 6.5 and sugar content of 3.7 percent. It inhibited protein synthesis by a rabbit reticulocyte lysate with an ID₅₀ of approximately 30 ng/ml and it inhibited protein synthesis in Thy 1.1 positive cells of mice with ID₅₀ of 3 ng/ml. The LD₅₀ was 16 mg/kg for mice by intraperitoneal injection. It is a single chain ribosome activating protein, with biological activity similar to momordin and saporin.

9302-0944 Shukla, B., Visen, P.K.S., Patnaik, G.K., Dhawan, B.N. (ICMR Centre for Advanced Pharmacological Studies on Traditional Remedies, Central Drug Research Institute, Lucknow 226 001, UP, India) **Prevention of carbon tetrachloride induced hepatic damage by picroliv.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. A40, (Eng).

Picroliv, the active constituent *Picrorhiza kurroa*, is a standardized preparation containing mainly two iridoid glycosides (Picroside I & Kutkoside) isolated from the root and rhizome of the plant. Picroliv evaluated for its choleretic and anticholestatic activity in rat, guinea pig and cat against carbon tetrachloride induced hepatotoxicity, showed dose dependent choleretic activity. Picroliv significantly showed a potent anticholestatic effect. Hepatoprotective activity was seen in isolated rat hepatocyte preparation. Significant reversal of enzymatic parameters (GOT, GPT and alkaline phosphatase) was observed.

9302-0945 Singh, G.B., Surjeet Singh, Bani, S., Kaul, A. (Regional Research Laboratory, Canal Road, Jammu-Tawi 180001, India) **Boswellic acids- A new class of anti-inflammatory drugs with a novel mode of action.** *International Seminar-Traditional Medicine-Calcutta*, 7-9 November, 1992, p. 81-82, 1992 (Eng).

Ethanollic extract of salai-guggal was developed as a safe and effective antiinflammatory drug. Boswellic acids (BA), the active constituent of *Boswellia serrata*, upon oral administration in a dose range of 50-200 mg/kg demonstrated antiinflammatory activity (AIA) by 28-50 percent in carrageenan, dextran edema in rats and mice. It produced marked AIA in adjuvant and formaldehyde arthritis in rats, gouty arthritis in dogs and bovine serum arthritis in rabbits. BA elicited inhibitory effect on the cell mediated and humoral immunity. Preclinical toxicity study in primates and rats over six months period showed no adverse effects. Clinical trials on volunteer patients of arthritis (n=60) showed significant improvement in morn-

ing stiffness, tenderness and swelling of various joints and restored the loss of function. Significant improvements were observed in arthritic score and ESR. One year follow up study on patients produced no undersirable effects (Abstr. No. IL 10B).

9302-0946 Singh, P., Gardner, M., Poddar, S., Choo-Kang, E., Coard, K., Rickards, E. (Department of Pharmacology, Anatomy and Pathology, UWI, India) **Toxic effects of Ackee oil (*Blighia sapida* (L.) following subacute administration to rats.** *West Indies Medical Journal*, v. 41(1): p. 23-26, 1992 (12 ref, Eng).

Subacute intraperitoneal administration of the lipid portion of the unripe ackee arillus (achee oil) resulted in marked neutropenia and increase in platelets without anemia in rats. Blood urea, sodium and aspartate aminotransferase levels were significantly decreased but glucose and bilirubin levels were similar to those of controls. The lungs showed area of petechial haemorrhage and a dose related perivascular and peribronchial mononuclear cell infiltration. The pulmonary toxicity may be interpreted as a hypersensitive reaction to achee oil.

9302-0947 Singh, S.P. (Reproductive Biology Cell, Department of Zoology, DBS (PG) College, Dehradun 248001, UP, India) **Antispermatic effect of *Tamarix Dioca* leaves on two vertebrate animals: Albino rat and house sparrow.** *Proc. of International Conference on Fertility Regulation, Nov. 5-8, Bombay, India*, (Eng).

Preliminary antispermatic activity of *Tamarix dioca* leaves was carried out. The aqueous suspension of leaf powder was administered orally at doses of 100, 250 and 400 mg/kg/day to different groups of male rats. Histopathological studies revealed maximum changes in testicular elements, viz., arresting spermatogenesis, deformed seminiferous tubules and anastomosis exfoliated cellular elements and Leydig's cell hypoplasia. Likewise, remarkable histopathological changes also found in house sparrows after administering them 10, 20 and 40 mg/day for 30 days.

9302-0948 Solankey, U.N., Richaria, V.S.. **A report on yellow oleander (*Pila kanher*) poisoning in cattle.** *VET*, v. 3(3): p. 120-121, 1991 (3 ref, Eng).

A report of poisoning in cattle due to yellow oleander, *Thevetia nerifolia* is presented. Leaves contain oleandroside, nerioside and other glycosides. The symptoms were respiratory distress, nervous irritability, tremors, tetanic convulsions and coma. The animals were given a course of parenteral injections of atropine sulphate, Corticosteroids and chlorpheniramine maleate, supplemented with 5 percent dextrose solution. NSL, New Delhi.

9302-0949 Stanley, A., Akbarsha, M.A. (School of Life Sciences, Bharathidasan University, Tiruchirappalli 620024, TN, India) **The basis of vincristine induced male infertility: An experimental study in rat.** *Proc. of International Conference on Fertility Regulation Nov. 5-8, 1992, Bombay, Maharashtra, India*, (Eng).

The role of vincristine in male gonadal toxicity by administering 10/20 kg of vincristine to winstar strain mature male albino rats or 5/10 micro g to prepubertal rats during pubertal transition daily for 15 days has been studied. Reduction in the size of the testis as well as accessory reproductive organs regressive changes in the central seminiferous tubules, absence of sperm in the testis as well as epididymis and origin of giant spermatogenic cells were noticed. Observation of semi-thin section of the testis of the treated rats revealed that spermatogenesis had progressed upto pachytene spermatocyte stage, beyond which cells became giant cells, leading to osmotic permeability suggesting the locus of vincristine action spermatogenesis ambit of the division process associated with spermatogenesis.

9302-0950 Sukumaran, K., Kuttan, R. (Amala Cancer Research Centre, Trichur, Kerala, India) **Inhibition of tobacco-induced mutagenesis by eugenol and plant extracts.** *Amala Research Bulletin*, v. 12: 96-99, 1992 (15 ref, Eng).

Inhibitory effects of eugenol and the extracts of *Anacyclus pyrethrum* and *Spilanthes calva* on tobacco-induced mutagenesis evaluated using Ames Salmonella/microsome assay. Significant (P) inhibition was observed with eugenol at concentrations 0.5 and 1 mg/plate. *Anacyclus pyrethrum* extract at 1 mg/plate produced 47.5 percent inhibition while the extract of *Spilanthes calva* inhibited tobacco-induced mutagenesis by 54 percent at 2 mg/plate. Eugenol and the plant extracts also inhibited the nitrosation of methylurea in a dose-dependent manner. NSL, New Delhi.

9302-0951 Sun, X.B., Matsumoto, T., Yamada, H. (Oriental Medicine Research Center of the Kitasato Institute, 5-9-1 Shirokane, Minato-ku, Tokyo 108, Japan) **Anti-ulcer activity and mode of action of the polysaccharide fraction from the leaves of *Panax ginseng*.** *Planta Medica*, v. 58(5): p. 432-435, 1992 (18 ref, Eng).

Oral administration of polysaccharide fraction of *P. ginseng* leaves (GL-4) at doses of 50 to 200 mg/kg inhibited the formation of the gastric lesions induced by necrotizing agents such as HCl/ethanol and ethanol in a dose-dependent manner. This protective effect was observed not only upon oral but also upon subcutaneous administration of GL-4 (50-100 mg/kg). GL-4 also inhibited the formation of gastric ulcers which were induced by water

immersion stress, indomethacin, or pylorus-ligation. The contents of prostaglandin E2 in the gastric juice from rats were not influenced by oral administration of GL-4. The protective action of GL-4 against HCl/ethanol-induced gastric lesions was not abolished by pretreatment with indomethacin. When GL-4 (100 mg/kg, p.o.) was administered into pylorusligated rats, pepsin activity in the gastric juice decreased significantly.

9302-0952 Suzuki, J., Nisizawa, T., Inagawa, H., Okutomi, T., Morikawa, A., Soma, G.I., Mizuno, D. (Bioechnology Research Center, Teikyo University, Nogawa, Miyamae-ku, Kawasaki 216, Japan) **Homeostasis as regulated by activated macrophage. IX. Enhancement effect of LPSw (a lipopolysaccharide from wheat flour) on hen egg-laying and breaking strength of eggshell.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1274-1276, 1992 (3 ref, Eng).

Oral administration of LPSw (a lipopolysaccharide from wheat *Triticum aestivum* flour) given at 60 micro g/hen/d in drinking water, markedly enhanced eggshell strength. The monthly percentage of eggs laid with a shell strength of more than 4kg to the total number of eggs was 32 percent in the group given LPSw in drinking water while it was 12 percent in the control group given plain water. At the same time, LPSw caused a 30 percent enhancement of total monthly number of eggs laid over that of control.

9302-0953 Suzuki, Y., Kobayashi, A., Nishizawa, T., Inagawa, H., Morikawa, A., Soma, G.I., Mizuno, D. (Biotechnology Research Center, Teikyo University, Nogawa, Miyamae-ku, Kawasaki 216, Japan) **Homeostasis as regulated by activated macrophage. VI. Protective effect of LPSw (a lipopolysaccharide from wheat flour) against acute infection by *Toxoplasma gondii* in mice.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1266-1267, 1992 (10 ref, Eng).

An oral administration of LPSw, a lipopolysaccharide from wheat *Triticum aestivum* flour, at a concentration of 20 ng/ml in drinking water beginning 1d after infection significantly mouse mortality and prevented animal weight loss in acute infection. Whereas 71 percent (5/7) of mice in a control group that did not receive LPSw died of toxoplasmosis, only 14 percent (1/7) of mice treated with LPSw died (p). The administration of LPS purified from *Bordetella pertussis* also significantly decreased the mortality of significant decrease in mortality.

9302-0954 Tian, Z.G., Yang, G.Z., Sun, R., Li, D.H., Zhang, J., Cui, Z.Y. (Department of Immunology, Shandong Academy of Medical Sciences, Jinan 250001, China) **Effect of panaxatriol ginsenoside on interleukin-6 mRNA**

translation. *Chinese Medical Journal*, v. 104(11): p. 965-967, 1991 (7 ref, Eng).

Ginsenosides Promote the function of immunological effector cells. Panaxatriol ginsenosides obtained from *Panax* spp. It has been found to promote cytokine (IL) production more strongly than panaxadiol ginsenoside. The molecular mechanism with which PTGS promotes IL-6 production in vitro has been studied.

9302-0955 Tripathi, S.C., Patnaik, G.K., Visen, P.K.S., Saraswat, B., Kulshreshtha, D.K., Dhawan, B.N. (ICMR Centre for Advanced Pharmacological Research on Traditional Remedies, CDRI, Lucknow 226 001, UP, India) **Evaluation of hepatoprotective activity of *Phyllanthus amarus* against experimentally induced liver damage in rat.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India*, v. December 5-8: p. 82, 1992 (Eng).

Alcoholic extract (100 mg/kg p.o.x7) of the whole plant exhibited significant protection in serum and liver biochemical parameters. Maximum activity was noticed in the butanol fraction (50 mg/kg p.o.x7; 35-80 percent protection). The aqueous fraction also showed mild protection (20-40 percent).

9302-0956 Tripathi, S.C., Patnaik, G.K., Shukla, B., Visen, P.K.S., Srimal, R.C., Dhawan, B.N. (Centre for Advanced Pharmacological Research on Traditional Remedies, Central Drug Research Institute, Lucknow 226001, UP, India) **Hepatoprotective activity of N-demethylricinine, the active principle of *Ricinus communis* Linn..** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991, PA12*, (Eng).

The alcoholic extract of the leaf evaluated against galactosamine and paracetamol-induced hepatotoxicity at 25, 50 and 100 mg/kg, p.o.x7 days dose levels was found active. The butanol fraction was found to be the most potent chromatographic fractionation two pure compounds viz. ricinine and N-demethylricinine were isolated. Both the compounds were tested in galactosamine and paracetamol models. N-demethylricinine was found to be more active. It exhibited a dose dependent (1.5, 3 and 6 mg/kg, p.o.x7) activity by restoring the toxin altered levels of several enzymatic and non-enzymatic parameters in the serum and liver of rats. It was also found to possess significant choleric and anticholestatic effects.

9302-0957 Udupa, A.L., Ramesh Kumar, Srinivasan, K.K. (Department of Pharmacology, K. Medical College, Manipal 576119, Karnataka, India) **Evaluation of hepatoprotective action of *Lawsonia inermis* Linn.** *Proceedings of 25th Indian Pharmacological Society Con-*

ference, Muzaffarpur, Bihar, India, December 5-8, 1992; p. 100 (Eng).

Alcoholic extract (1.5g/kg p.o) of *L.inermis* stem bark administered to experimental rats showed significant decrease in serum ALT and AST levels.

9302-0958 Udupa, A.L., Udupa, S.L.(Depts. of Pharmacology & Biochemistry, KMC, Manipal 576119, Karnataka, India) **Effect of Aloe vera Linn. on inflammation and wound healing in albino rats.** *Proc. 24th Indian Pharmacological Soc. Conference, Ahmedabad, Gujarat, India, December 29-31, 1991*, P1, (Eng).

Effect of the fresh juice of *Aloe vera* (0.2ml/100 g, i.p., n=8_) was studied for its anti-inflammatory actions by observing percentage reduction in carageenin induced rat paw volume at 3hr. and subcutaneously harvested granuloma tissue weight on 10th day. *Aloe vera* showed significant (p) anti-inflammatory activity in acute inflammatory model without any significant effect on chronic inflammation. Significant increase in breaking strength (incision wound), enhanced wound contractile in breaking strength of granulation tissue and biochemical parameters (dead space wound) were also observed. Mode of action of the drug by increasing the extent of cross-linking of collagen via lysyl oxidase as well as by enhancing the tensile strength by interactions, with the ground substances has been suggested.

9302-0959 Valsakumari, M.K., Elango, V. , Sulochana, N.(Department of Chemistry, Regional Engineering College, Ticuhirapalli 620015, India) **A new trioside from *Symphorem A involucreatum* and its anti-inflammatory activity.** *Fitoterapia*, v. 63(5): p. 465-466, 1992 (2 ref, Eng).

Quercetin-3-O-glucorhamnoarabinoside has been isolated from the fresh flowers of *S.involucreatum*. Its anti-inflammatory activity was studied by rat paw oedema method. It was found to have activity comparable to the standard drug, phenylbutazone.

9302-0960 Valsala, S., Muthayya, N.M. , Sivakumar, S.(Department of Physiology, Rajah Muthiah Medical College, Annamalai University, Annamalainagar 608002, TN, India) **Effect of *Mimosa pudica* Linn. root extract on ovarian weight, the size and number of pre-graffian follicles and ovulation.** *Pro. International Conference on Fertility Regulation, Bombay, India, Nov. 5-8, 1992*, (Eng).

The extract (150 mg/kg body weight) of *Mimosa pudica* was administered for 4 consecutive days prior to the next expected proestrus. To study the effect on ovulation, the rats exhibiting metestrus were selected and divided into control and experimental groups. The extracts were ad-

ministered starting from metestrus till the expected day of estrus, e.e. the ovulation day. The histological studies revealed decreased ovarian weight, a significant reduction in the number of normal pre-Graffian follicles and increase in the atretic follicles. A significant reduction in the number of normal ova and increase in the number of degenerated ova was also observed. M.Idris, New Delhi.

9302-0961 Varghese, C.D., Nair, S.C. , Panikkar, K.R.(Amala Cancer Research Centre, Thrissur-680553, Kerala, India) **Chemoprotection of SARACA ASOCA extracts on Cisplatin induced toxicity in mice.** *Amala Research Bulletin*, v. 12, p. 86-91, 1992 (14 ref, Eng).

The effect of the administration of an extract of *Saraca asoca* was studied in mice that were treated with a dose of 2mg/kg of cisplatin i.p. for 5 days. The extract of *Saraca asoca* bark partially prevented the decreases in body weight, haemoglobin levels and leucocytes counts caused by 2 mg/kg of cisplatin. The intraperitoneal administration of *Saraca asoca* bark extract also significantly prolonged the life span of cisplatin treated mice almost three fold. In contrast, an extract of flower only tended to protect from cisplatin induced falls in haemoglobin levels and leucocyte counts. NSL, New Delhi.

9302-0962 Visen, P.K.S., Saraswat, B. , Patnaik, G.K., Srimal, R.C., Dhawan, B.N.(ICMR Centre for Advanced Pharmacological Research on Traditional Remedies, CDRI, Lucknow 226 001, UP, India) **Curative effect of some hepatoprotective constituents isolated from plants against galactosamine toxicity: In vitro study on primary cultured rat hepatocytes.** *Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India, v. December 5-8: p. 83* , 1992 (Eng).

Curative effect of active constituents picroliv (from *Picrorhiza kurroa*) and andrographolide (from *Andrographis paniculata*) has been reported. Picroliv (35-100 percent) and andrographolide (44-100 percent) in the dose range of 1-100 micro gram/ml resulted in significant reversal of the altered values of the viability of the hepatocyte and biochemical parameters.

9302-0963 Visen, P.K.S., Shukla, B., Patnaik, G.K., Dhawan, B.N. (ICMR Centre for Advanced Pharmacological Studies on Traditional Remedies, Central Drug Research Institute, Lucknow 226001, UP, India) **Evaluation of hepatoprotective activity of andrographolide isolated from the plant *andrographis paniculata*.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India Dec. 29-31, 1991*, PA12, (Eng).

Andrographolide, the active antihepatotoxic principle isolated from the plant per se produced a dose (1.5 to 12

mg/kg po x 7) dependent choleretic activity in conscious rat as well as anaesthetized guinea pig. It also showed a significant anticholestatic effect (40.100 percent) against galactosamine induced hepatic damage. The compound showed significant hepatoprotective activity (20.100 percent) by increasing the viability of hepatocytes as tested by trypan blue exclusion and oxygen uptake tests. Andrographolide reversed the altered values of GOT, GPT and alkaline phosphatase in hepatocytes and serum. Andrographolide was found to be more potent than silymarin, a known hepatoprotective drug.

9302-0964 Wojcicki, J., Samochowiec, L., Dutkiewicz, T., Tustanowski, S. (Institute of Pharmacology and Toxicology, Department of Clinical Biochemistry, and Department of Radioisotopes, Medicinal Academy, Powstancow Wielkopolskich 72, 70-111 Szczecin, Poland) **The effect of pollen extracts on the endocrine function in rabbits.** *Herba Polonica*, v. 37(3-4): p. 151-155, 1991 (13 ref, Eng, Pol).

The effect of pollen extracts (Cernitin T60 and GBX) administrated to normolipemic rabbits during one month, on the serum content of estradiol, testosterone, insulin, thyroxine, triiodothyronine and cortisol has been studied. A marked elevation in the testoserone level in male rabbits and in the insulin and thyroxine level in both sexes was found. The hormone influence on the lipid metabolism that they constitute one of the points of appear to be due to antiatherosclerotic properties of pollen extracts.

9302-0965 Yang, X.W. (Research Institute for Wakan-Yaku, Toyama Medical and Pharmaceutical University, 2630, Sugitani, Toyama 930-01, Japan) **Isolation of novel lignans, heteroclitins F and G from the stem of Kadsura heteroclita, and antilipid peroxidative actions of heteroclitins A-G related compounds in the in vitro rat liver homogenate system.** *Chemical & Pharmaceutical Bulletin*, v. 40(6): p. 1510-1516, 1992 (16 ref, Eng).

From the stem bark of *K. heteroclita* two new lignans, heteroclitins F and G were isolated and their structures were determined by various spectroscopic means. Dibenzocyclo-octadiene type lignans and related compounds isolated potentially inhibited the lipid peroxidation in the rat liver homogenate stimulated by Fe 2+-ascorbic acid, CCl₄-reduced form of nicotinamide adenine dinucleotide phosphate and adenosine 5'-diphosphate.

9302-0966 Yu, J.G., HO, D.K., Cassady, J.M., Xu, L., Chang, C.J. (Division of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, The Ohio State University, Columbus, Ohio 43210, USA) **Cytotoxic polyketides from *Annona densicoma* (Annonaceae): 10,13-trans-13,14-erythro-densicomacin, 10,13-trans-**

13,14-threo-densicomacin, and 8-hydroxyannonacin. *Journal of Organic Chemistry*, v. 57(23): p. 6198-6202, 1992 (6 ref, Eng).

Three new linear polyketides, 10,13-trans-13,14-erythro-densicomacin (1), 10,13-trans-13, 14-threo-densicomacin (2), and 8-hydroxyannonacin (3), and a known polyketide goniothalamycin were isolated from the stem bark of the Peruvian plant *A. densicoma*. Their structures were elucidated on the basis of UV, IR, ¹H and ¹³C NMR, and mass spectrometry data of the natural compounds and their derivatives. These polyketides are cytotoxic against human tumor cells in culture. In particular, densicomacins (1 and 2) were significantly active against the lung carcinoma (A-549) and the colon adenocarcinoma (HT-29) cell lines.

Antimicrobial Activity

9302-0967 Ceska, O., Chaudhary, S.K., Warrington, P.J., Ashwood-smith, M.J. (Department of Biology, University of Victoria, PO Box 1700, Victoria, BC V8W 2Y2 Canada) **Coumarins of chamomile, *Chamomilla recutita**.** *Fitoterapia*, v. 63(5): p. 387-394, 1992 (30 ref, Eng).

Boiling water extracts of commercially available chamomile tea bags, a hydroalcoholic extract of loose chamomile flowers, Kamillosan, and oil of chamomile were analyzed by HPLC for the coumarins umbelliferone and herniarin. These were found in high concentrations and both were photoactive. In the presence of light herniarin in particular inhibited growth of various microorganisms. The phydroalcoholic extract and Kamillosan showed antimicrobial activity in the presence of light and none in the dark. Both coumarins may thus contribute to the antimicrobial activity of chamomile extracts. Umbelliferone and herniarin are soluble in hot water as well as in organic solvents and are present in all chamomile preparations.

9302-0968 Chaumont, J.P., Leger, D. (Laboratoires de Botanique et de Cryptogamie, Faculte de Medecine et de Pharmacie, Place Saint-Jacques, F 25030 Besancon Cedex) **Elimination of allergenic moulds in dwellings. Antifungal properties of vapours of essential oil of geranium 'Bourbon', citronellol, geraniol and citral.** *Annales Pharmaceutiques Francaises*, v. 50(3): p. 156-166, 1992 (14 ref, Eng, Fre).

Many fungal airborne spora show allergenic effects. Indoors (dwellings, work-rooms, hospital chambers) can be disinfected by elimination of living particles. Experiments in spacious dwellings were under above for evaluation of the antifungal effects essential oil vapours and some volatiles compounds. Results show that the Mucorales and Geotrichum resist strongly. On the contrary, the

Cladosporium strains, some Aspergillus and Penicillium, Trichothecium roseum are the most sensitive, specially towards that citral vapours. Experiments in hospital should be undertaken.

9302-0969 Delitheos, A.K., Papadimitriou, C.A., Yannitsaros, A.G. (Department of Experimental Pharmacology, Athens University, School of Medicine, 115 27 Athens, Greece) **Investigation for antiphage activity in plant extracts.** *Fitoterapia*, v. 63(5): p. 441-450, 1992 (16 ref, Eng).

Extract prepared from 202 plants grown in the Attica area of Greece were evaluated for inhibitory effect of the growth of 6 bacteriophages (T2, T4, T7, X174, MS2 and PS7) that have been used as a convenient viral model. The results showed that 196 extracts gave initial indications of antiphage activity against one or more of the phages used. When the active extracts retested in the presence of proteins (Tryptone Soya Broth and human plasma consecutively), the antipage property was abolished, probably due to the precipitation of the active compounds by tannins or relative substances.

9302-0970 Fasihuddin, B.A., Shanty, V., Atan, m.S. (Department of Chemistry, Faculty of Science and Environmental Studies, Universiti Pertanian Malaysia, 43400 UPM, Serdang, Selangor Darul Ehsan, Malaysia) **Phaeanthine and limacine from Phaeanthus crassipetalus Becc.** *Pertanika*, v. 14(3): p. 355-358, 1991 (7 ref, Eng, Mal).

Two major alkaloids have been isolated and characterized based on their spectral information. The alkaloids, phaeanthine and limacine showed antibacterial activity against gram positive and gram negative bacteria.

9302-0971 Fournet, A., Angelo, A., Munoz, V., Roblot, F., Hocquemiller, R., Cave, A. (Institut Francais de Recherche Scientifique pour le Developpement en Cooperation (ORSTOM), Departement Sante, 213, rue la Fayette, 75480 Paris, Cedex 10, France) **Biological and chemical studies of Pera benesis, a Bolivian plant used in folk medicine as a treatment of cutaneous leishmaniasis.** *Journal of Ethnopharmacology*, v. 37(2): p. 159-164, 1992 (14 ref, Eng).

The stem barks of *P. benensis* are employed by the Chimane Indians in the Bolivian Amazonia as treatment of cutaneous leishmaniasis caused by the protozoan *Leishmania braziliensis*. The chloroform extracts containing quinones were found active against the promastigote forms of *Leishmania* and the epimastigote forms of *Trypanosoma cruzi* at 10 micro g ml⁻¹. The activity guided fractionation of the extract by chromatography afforded active compounds. Their structures were elucidated, by spectral and

chemical studies, as known naphthoquinones, plumbagin, 3,3'-biplumbagin, 8-8'-biplumbagin, and triterpene, lupeol. The activity in vitro of each compound was evaluated against 5 strains of *Leishmania* (promastigote), 6 strains of *Trypanosoma cruzi* (epimastigote) and the intracellular form (amastigote) of *Leishmania amazonensis*. Plumbagin was the most active compound in vitro. *P. benesis*, a medicinal plant used in folk medicine has been reported to be efficient in the treatment of cutaneous leishmaniasis.

9302-0972 Gabrielsen, B., Monath, T.P., Huggins, J.W., Kefauver, D.F., Pettit, G.R., Groszek, G., Hollingshead, M., Kirsi, J.J., Shannon, W.M., Schubert, E.M. et al. (U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, Frederick, Maryland 21702, USA) **Antiviral (RNA) activity of selected amaryllidaceae isoquinoline constituents and synthesis of related substances.** *Journal of Natural Products*, v. 55(11): p. 1569-1581, 1992 (56 ref, Eng).

A series of 23 Amaryllidaceae isoquinoline alkaloids and related synthetic analogues were isolated or synthesized and subsequently evaluated in cell culture against the RNA-containing flaviviruses, bunyaviruses, alphavirus, lentivirus and the DNA-containing vaccinia virus. Narciclasine, lycoricidine, pancratistatin, 7-deoxypancratisatin and acetates, isonarciclasine, cis-dihydronarciclasine, trans-dihydronarciclasine, their 7-deoxy analogues, lycorines, and pretazettine exhibited consistent in vitro activity against all three flaviviruses and against the bunyaviruses, Punta Toro and Rift Valley fever virus. In most cases, however, selectivity of the active compounds was low, with toxicity in uninfected cells (TC₅₀) occurring at concentrations within 10-fold that of the viral inhibitory concentrations (IC₅₀). No activity was observed against human immunodeficiency virus-type 1, Venezuelan equine encephalomyelitis virus, or vaccinia viruses.

9302-0973 Ganguli, N.B., Bhatt, R.M. (Department of Microbiology, Institute of Science, Bombay 400 032, Maharashtra, India) **Mode of action of active principles from stem bark of Albizzia lebbeck Benth.** *Indian Journal of Experimental Biology*, v. 31(2): p. 125-129, 1993 (15 ref, Eng).

Antimicrobial screening of active principle(s) isolated from stem bark of *A. lebbeck* has shown the total glycosides, cardenolide glycosides and anthraquinone glycosides/anthraquinones, to be active against test cultures selected for study. Mode of action study of the active principles against aerobes showed that the glycosides caused leakage of cytoplasmic constituents. Electron micrographs of *Staphylococcus aureus* cells treated with minimum inhibitory concentration of anthraquinones reveal

coarse granulation of the cytoplasmic matrix, vacuolation of the cells and in a few cases, disruption of the cell surface.

9302-0974 Hussain Shah, N., Khan, I.M., Azam, M.F. (Section of Plant Pathology and Nematology, Department of Botany, AMU, Aligarh, 202002, UP, India) **Seed mycoflora of cowpea and its control with extract of *Argemone mexicana***. *Bioved*, v. 3(2): p.167-168, 1992 (5 ref, Eng).

Seventeen fungal species were isolated from seed mycoflora of cowpea seeds from local fields. The highest frequency was recorded for that of *Aspergillus flavus*. A mexicana was found fungitoxic against several fungi associated with seeds but it was ineffective against *Alternaria alteronata*, *Curuvularia lunata*, *Microphomina phaseoliva* and *Mucor spp* NSL, New Delhi.

9302-0975 Iwu, M.M., Jackson, J.E., Tally, J.D., Klayman, D.L. (Department of Medicinal Chemistry, Division of Experimental Therapeutics, Walter Reed Army Institute of Research, Washington, D.C.20307, USA) **Evaluation of plant extracts for antileishmanial activity using a mechanism-based radiorespirometric microtechnique (RAM)**. *Planta Medica*, v. 58(5): p. 436-441, 1992 (15 ref, Eng).

Extracts of eleven plants used in Nigerian traditional medicine have been evaluated for antileishmanial activity using a radiorespirometric microtest technique based on in vitro inhibition of catabolism of $^{14}\text{CO}_2$ from a battery of ^{14}C -substrates by promastigotes. of 13 methanol extracts tested, 5 from *Gongronema latifolia*, *Dorstenia multi-radiata*, *Picralima nitida*, *Cola attiensis*, and *Desmodium gangeticum*, were active at concentrations of 50 micro g/ml or less against a visceral Leishmania isolate.

9302-0976 Japan, K., Ahmad, K. (Institute of Nutrition and Food Science, University of Dhaka, Dhaka, Bangladesh) **Studies on herbal medicine in the treatment of shigellosis**. *International Seminar- Traditional Medicine, Calcutta*, 7-9 November 1992, p. 135-136, (Eng).

The presence of six antimicrobial substance, active against shigella (blood dysentery) have been demonstrated in the leaves of *Euphorbia hirta*. They are active in vitro specially in antibiotic resistant cases (including nalidixic acid and pinamidinocillin). (Abstr. No. P 8.17).

9302-0977 Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., Nakatsu, T. (Takassago Institute for Interdisciplinary Science, 325 North Wiget Lane, Walnut Creek, California 94598, USA) **Antimicrobial activity of the volatile constituents of *Perilla frutescens* and its synergistic effects with polygodial**. *Journal of Agricultural and*

Food Chemistry, v. 40(11): p. 2328-2330, 1992 (13 ref, Eng).

The steam distillate of the green leaves of *P. frutescens* has broad antimicrobial activity assumed from its use as food and food additives. The steam distillate mainly consists of perillaldehyde, limonene, beta-caryophyllene, alpha-bergamotene, and linalool. The most abundant, perillaldehyde, inhibits moderately a broad range of both bacteria and fungi. Perillaldehyde works in synergy with polygodial not only against fungi but also against both Gram-positive and Gram-negative bacteria. Synergistic effects are evaluated by the fractional inhibition concentration method.

9302-0978 Khan, M.I., Shah, N. (Seed Pathology Laboratory, Section of Plant Pathology and Nematology, Department of Botany, AMU, Aligarh, UP, India) **Antifungal activity of leaf extract on neem seed mycoflora of wheat**. *Bioved*, v. 3(2): p. 209-210, 1992 (4 ref, Eng).

The antifungal activity of leaf extract of neem *Azadirachta indica* on wheat seeds were tested at different dilution (1:2, 1:4, 1:8). Treatment showed marked reduction in seed mycoflora as well as enhancement in seed germination. NSL, New Delhi.

9302-0979 Koumaglo, K., Gbeassor, M., Nikabu, O., de Souza, C., Werner, W. (Institut für Pharmazeutische Chemie, Westfälische Wilhelms-Universität, Hottorfstr. 58-62, D(W)-4400 Münster, Federal Republic Germany) **Effects of three compounds extracted from *Morinda lucida* on plasmodium falciparum**. *Planta Medica*, v. 58(6): p. 533-534, 1992 (10 ref, Eng).

The effects of three compounds, digitolutein, rubiadin 1-methyl ether and damnacanthol extracted from the stem bark and the roots of *M. lucida* on the growth of *P. falciparum* in vitro were investigated. The number of malarial parasites (schizonts) decreased significantly in a dose-dependent manner and 100 percent of inhibition was obtained with 30 to 40 micro g of each compound tested. The IC₅₀ values were calculated.

9302-0980 Kubo, I. (Division of Entomology & Parasitology, College of Natural Resources, University of California, Berkeley, California, USA) **Antimicrobial activity of green tea flavour components and their combination effects** (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 728, 1992 (Eng).

Ten most abundant volatile components of green tea flavour exhibited a broad spectrum of antimicrobial activity. Most of the tested volatiles inhibited the growth of cariogenic bacterium, *Streptococcus mutans*. Indole ex-

hibited a significant enhancing activity of some volatiles against this bacterium. Some of the volatiles may be potent enough to be considered for practical use as antimicrobial agents.

9302-0981 Maleszka, R., Lutomski, J., Swiatlowska-gorna, B., Rzepecka, B. (Oddzial Dermatologiczny Szpitala MSW, ul. Dojazd 34, 60-631 Poznan, Polska) *Study on extending of the activity spectrum of a garlic preparation against candidiasis. Herba Polonica*, v. 37(2): p. 85-88, 1991 (3 ref, Eng, Pol).

The plant preparation made of garlic juice *Allium sativum* and thymol shows a wide range of activity. Besides dermatophytes it acts also to candidiasis. Effectiveness of this preparation depends on its ability to penetrate into tissues affected by fungi. Therefore, the best results of the treatment are observed in the case when mycotic foci are placed on the skin.

9302-0982 Malik, J.K., Sarvaiya, J.G., Pal, M. (Department of Pharmacology, College of Veterinary Science, Anand 388001, Gujarat, India) **Activity of some indigenous plants against systemic fungal pathogens.** *Proc. 24th Indian Pharmacol. Soc. Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. A10, (Eng).

Chloroform and ethanol extracts of leaves of *Adhatoda vasica*, *Cassia fistula* and *Prosopis juliflora* and ethanol extract of *Allium sativum* showed in vitro antifungal activity against systemic fungal pathogens.

9302-0983 Mishra, M., Tewari, S.N. (Laboratory of Natural Plant Product, Central Rice Research Institute, Cuttack 753006, Orissa, India) **Toxicity of *Polyalthia longifolia* against fungal pathogens of rice.** *Indian Phytopathology*, v. 45(1): p. 59-61, 1992 (9 ref, Eng).

Ethanol extract and essential oil of *Polyalthia longifolia* leaf were tested against five rice pathogens, viz., *Pyricularia oryzae*, *Rhizoctonia solani*, *Fusarium moniliforme*, *Aspergillus niger* and *Curvularia lunata*. Ethanol extract besides being more effective was found to possess broad spectrum fungi toxicity than essential oil.

9302-0984 Neto, G.C., Kono, Y., Hyakutake, H., Watnabe, M., Suzuki, Y., Sakurai, A. (The Institute of Physical and Chemical Research, Wako, Saitama 351-01, Japan) **Isolation and identification of (-)-Jasmonic acid from wild rice, *Oryza officinalis*, as an antifungal substance.** *Agricultural and Biological Chemistry*, v. 55(12): p. 3097-3098, 1991 (19 ref, Eng).

Wild rice species *Oryza officinalis* W0002 yielded (-) jasmonic acid as an antifungal substance. It inhibited 100 percent of spore germination of *P. Oryzae* at 250 ppm; 86

percent at 200 ppm and 10 percent at 100 ppm. The ED50 value was estimated to be approximately 150 ppm.

9302-0985 Purohit, M.C., Rawat, M.S.M., Pant, G. (Department of Chemistry, H.N.B. Garhwal University, Srinagar-246174, UP, India) **Antimicrobial activity and phytochemical analysis of *Spiraea vestita*.** *Fitoterapia*, v. 63(5): p. 461, 1992 (3 ref, Eng).

Isolation of beta-amyrin, beta-sitosterol, beta-sitosterol-beta-D-glucoside, quercetin, quercetin-3-O-L-rhamnopyranoside and oleanolic acid beta-D-glucopyranoside from the leaves and seeds extracts of *S. vestita* is reported. The ethanol extract of the leaves of *S. vestita* showed antibacterial activity against *Escherichia coli* at 500 mg/ml and the ethanolic extract of the seeds was active at 500 mg/ml against *Cryptococcus neoformans*.

9302-0986 Ratsimamanga-Urverg, S., Rasoanaivo, P., Ramaramanana, L., Milijaona, R., Rafatro, H., Verdier, F., Rakoto-Ratsimamanga, A., Bras, J. (Centre National de Reference Chimiosensibilite du Paludisme (IMEAT) and Laboratoire de Parasitologie, Universite R. Descartes, F-75270 Paris, France) **In vitro antimalarial activity and chloroquine potentiating action of two bisbenzylisoquinoline enantiomer alkaloids isolated from *Strychnopsis thouarsii* and *Spirospermum penduliflorum*.** *Planta Medica*, v. 58(6): p. 540-543, 1992 (23 ref, Eng).

The bisbenzylisoquinolines 7-O-demethyltetrandrine and limacine, respectively, isolated from *S. thouarsii* and *S. penduliflorum* were evaluated for their intrinsic antimalarial activity in vitro and chloroquine potentiating action against the chloroquine-resistant Plasmodium falciparum FCM 29 originating from Cameroon. They both showed significant antiplasmodial potency in vitro with very similar IC50 values of respectively, 740 nM and 789 nM (IC50=214 nM for chloroquine used as standard drug), which demonstrated likely plays a role in the chloroquine potentiating effect of these drugs. If confirmed in vivo, these results may account for the traditional use of the two plants as antimalarials and adjuvant to chloroquine in madagascan folklore remedies.

9302-0987 Sharma, P.K., Sharma, K.P., Kushwaha, H.K., Sharma, B.N. (Shalya Department, National Institute of Ayurveda, Amer Road, Jaipur 302002, Rajasthan, India) **Antiinflammatory action of S.G. Bati.** *International Seminar- Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 100-101, 1992 (Eng).

A number of indigenous drugs are claimed to be effective in the treatment of inflammation. In the present study, such formulation Sandhaneeya Ghanvati (S.G. Bati)

described by Maharshi Charka in the chapter of Sutrasthan-4/5 of Charaka Samhita as a Sandhaneeya mahakashaya has been evaluated. The inflammatory effect of S.G. Bati was studied in clinical and animal experimental trials. In experimental trials on albino rats the S.G. Bati reduced the inflammation produced by carrageenin. Apart from anti-inflammatory action the S.G. Bati has an excellent analgesic property also. A comparative clinical trial of S.G. Bati as an anti-inflammatory drug was conducted in 30 patients of NIA Hospital, Jaipur. The result indicated effectiveness on both clinical and experimental trial without any unpleasant, in tolerable side effects. (Abstr. No. P7.02).

9302-0988 Singh, G., Upadhyay, R.K. (Department of Chemistry, University of Gorakhpur 273009 UP, India) **Fungitoxic activity of the volatile oil of *Hyptis suaveolens*.** *Fitoterapia*, v. 63(5): p. 462-465, 1992 (19 ref, Eng).

Isolation of essential oil (yield 0.65 percent) from the leaves of *H. suaveolens* is reported. The volatile oil of *H. suaveolens* exhibited strong antifungal activity against various test fungi. The fungitoxicity of the oil was found to be thermostable and remains unchanged even on autoclaving and storage. The oil was found to be more potent as compared to commercial synthetic fungicides and exhibited no phytotoxicity against *Vigna radiata*.

9302-0989 Venkatanarayana, V., Kokate, C.K., Venkateswarlu, V.. **Formulation and evaluation of herbal vanishing cream.** *Indian Medicine*, v. 1(2): p. 6-11, 1989 (Recd. 1992, 5 ref, Eng).

Ethanollic extracts prepared by maceration from dried peels of *Citrus aurantium* and *Citrus limon*; dried roots of *Hedychium spicatum* and dried rhizomes of *Curcuma longa* were evaluated for antibacterial activity. Herbal compositions prepared by combining different concentrations of extracts and other herbal ingredients were incorporated into vanishing cream bases. The herbal vanishing creams were evaluated for physical stability and antibacterial activity. The results revealed the importance of quality control measures and production procedures in formulating an effective herbal vanishing cream.

9302-0990 Verma, A., Singh, R.B., Verma, H.N. (Department of Botany, Plant Virus Pathology, Lucknow University 2260007, UP, India) **Prevention of soybean mosaic virus infection in glycine max plants by plant extract.** *Bioved*, v. 3(2): p. 225-228, 1992 (7 ref, Eng).

Soybean mosaic virus infection on *G. max* was suppressed by the treatments of partially purified leaf extract of *Clerodendrum aculeatum*. Treatments were administered as six pre-inoculation foliar sprays, at a concentration of 2:1

virus (soybean mosaic) was inoculated after 24 hrs of the last spray in control and treated plants. Comparative data recorded w.r.t. symptom development, disease incidence, growth, flowering seeding, nodulation and yield revealed that the partially purified concentrate obtained from an extract of CA leaves reduced infection upto a considerable extent. Consequently flowering and fruiting was advanced in treated plants which displayed higher nodulation and good yield. NSL, New Delhi.

9302-0991 Weber, N.D., Andersen, D.O., North, J.A., Murray, B.K., Lawson, L.D., Hughes, B.G. (Murdoch Healthcare Springville, Utah 84663, USA) **In vitro virucidal effects of *Allium sativum* (Garlic) extract and compounds.** *Planta Medica*, v. 58(5): p. 417-423, 1992 (20 ref, Eng).

The in vitro virucidal effects of fresh garlic (*A. sativum* extract, its polar fraction, and the following garlic associated compounds, diallyl thiosulfinate (allicin), allyl methyl thiosulfinate, methyl allyl thiosulfinate, ajoene, alliin, deoxyalliin, diallyl disulfide, and diallyl trisulfide, was determined against selected viruses including, herpes simplex virus type 1, herpes simplex virus type 2, parainfluenza virus type 3, vaccinia virus, vesicular stomatitis virus, and human rhinovirus type 2. The predominant thiosulfinate in fresh garlic extract was allicin. From the results obtained it is suggested that the virucidal activities of commercial products were dependent upon their preparation process. Those products producing the highest levels of allicin, and other thiosulfates had the best virucidal activities.

Insecticidal & Piscicidal Activity

9302-0992 Bhagat, O.P. (Department of Zoology, JNL College Khagul, Patna 801105, Bihar, India) **Morphogenetic aberration and growth regulatory effect of *Ocimum sanctum* against *Anopheles stephensi* L.** *Bioved*, v. 3(2): p. 153-156, 1992 (11 ref, Eng).

Acetone extract of *O. sanctum* leaf exposure against fourth instar larvae of *Anopheles stephensi* elicited different reactions according to dosage administered. At low dosages, pupation occurred after a prolonged larval period in most cases, and the resulting pupae were intermediate forms. Individuals treated with the highest dosage usually did not fully complete their developments, dying as a larvae or abnormal pupae. Prolongation of larval period may be due to increased titre of juvenile hormone, and the various juvenomimetic appearances are supposed to be the interference of extract with ecdysteroid production. NSL, New Delhi.

9302-0993 Bhattacharyya, P.R., Nath, S.C., Bordoloi, D.N. (Division of Medicinal and Economic Plants, Regional Research Laboratory, Jorhat 785006, Assam, India) **Insecticidal activity of *Ranunculus sceleratus* (L.) against *Drosophila melanogaster* and *Tribolium castaneum*.** *Indian Journal of Experimental Biology*, v. 31(1): p. 85-86, 1993 (9 ref, Eng).

Ether extract of *R.sceleratus* containing lactones protoanemonin and anemonin caused significant reduction in larval activity, pupal weight and pupal emergence of fruit flies at all the concentrations tested. No adult emergence was observed at any concentration of the distillate as against 100 percent emergence recorded in controls. There was weight reduction and high mortality in treated red flour beetles. No insect could survive at 1 and 5 percent concentration of the extract beyond 15 and 10 days respectively.

9302-0994 Hayashi, Y., Kim, Y., Hayashi, Y., Chairul (Faculty of Science, Osaka City University, Sumiyoshi ku, Osaka, 558, Japan) **Nagilactones as an antifeedant from *Podocarpus nagi* for herbivorous mammals.** *Bioscience, Biotechnology and Biochemistry*, v. 56(8): p. 1302-1303, 1992 (9 ref, Eng).

Podocarpus nagi leaves were extracted with methanol, five fractions were obtained. Epicatechin was identified along with diacetates of nagilactone A, magilactone C and diacetate of 1-deoxy-2beta, 3beta-epoxy nagilactone A. Bioactivity was examined by qualitative method with authentic samples of nagilactone A, C and 1-deoxy-2beta, 3beta-epoxynagilactone as approx. 1 percent acetone solution of each dilactone. Activity was found with all the three authentic natural dilactones, but not with their corresponding acetates.

9302-0995 Jagannadh, V., Nair, V.S.K.* (Department of Zoology, University of Calicut, Kerala 673 635, India) **Effects of azadirachtin and a juvenile hormone analogue on neck-ligated post-feeding larvae of *Spodoptera mauritia* Bois.** *Indian Journal of Experimental Biology*, v. 31(2): p. 199-200, 1993 (17 ref, Eng).

Neck-ligated larvae topically treated with acetone or injected with ethanol/azadirachtin, extracted from the seeds of *Azadirachta indica* (AZA) survived for varying number of days and then died without pupating. All the larvae treated with 5 micro g JHA transformed into headless pupae within seven days. On the other hand neck-ligated larvae topically treated with juvenile hormone analogue (JHA) and simultaneously injected with 5 micro g/5 micro l of solvent of AZA failed to undergo normal pupation. Forty six percent of larvae treated with 2 micro g AZA and 5 micro g JHA moulted into larval-pupal intermediates. The results suggest

that AZA affect the JHA-induced prepupal surge of ecysteroids.

9302-0996 Mohapatra, R.N., Patnaik, N.C., Mishra, B.K., Patnaik, H.P.(O.U.A.T. Regional Research Station, Keonjhar, Orissa, India) **Comparative toxicity of some insecticides and neem oil against the brown planthopper, *Nilaparvata lugens* (Staal) and its predators.** *Orissa Journal of Agricultural Research*, v. 4(3&4): p. 239-240, 1991 (4 ref, Eng).

Forty-five day old rice seedlings grown in small earthen pots were sprayed with the test insecticides and neem oil 1ml/pot. by an atomiser. Neem oil gave promising control of BPH in the range of 24 percent. It is interesting to note that at this concentration it had no significant adverse effect on the predatory species tested. NSL, New Delhi.

9302-0997 Mwangi, R.W., Mukiama, T.K. (Department of Zoology, University of Nairobi, PO Box 30197, Nairobi, Kenya) **Studies of insecticidal and growth-regulating activity in extracts of *Melia volkensii* (Gurre), an indigenous tree in Kenya.** *East African Agricultural and Forestry Journal*, v. 54(3): p. 165-171, 1989 (Recd. 1992, 22 ref, Eng).

At a high concentration (100 micro g/ml) in water the extract of fruits of *M.volkensii* had acute toxicity effects, which killed all 2nd instar larvae within one hour. At low concentration the extract had growth inhibiting and disrupting effects. The growth of larvae exposed to a low concentration of the extract was retarded, although such larvae lived longer than the larvae used in the controls and eventually died without attaining adulthood. Treated larvae also failed to shed the exuviae or to melanise after a moult. Many of those that succeeded to moult were intermediates between two instars. It became apparent from the data collected that the mode of action of the compounds present in the extract was a combination of neurotoxicity, antifeedant and interference with the endocrine system.

9302-0998 Pajni, H.R., Gill, M., Singla, A. (Department of Zoology, Punjab University, Chandigarh, 160014, Punjab, India) **Citriodora oil of *Eucalyptus* and eucalyptus oil, new fumigants against insect pests.** *Biologia Indica*, v. 2(1&2): p. 111-112, 1991 (11 ref, Eng).

Citriodora oil of *Eucalyptus* and Eucalyptus oil extracted respectively from *E.citriodora* and *E.globulus* and tested for first time as fumigants have been found quite effective with LD50 values of the two oils being 0.0444/1000 ml and 0.050/1000 ml respectively against the adults of *Callosobruchus maculatus* and 0.160/1000 ml and 0.180/1000 ml against *Dysdercus koenigii*. The 2nd

instar nymphs of the latter species are relatively more susceptible than the adults. NSL, New Delhi.

9302-0999 Shah, S.D.(Post Graduate Department of Zoology, Khadir Mohideen Collge, Adirampattinam, 614701, TN, India) **Inhibitory action of Catharanthus roseus total leaf alkaloids extracts on fecundity of the house cricket, *Grylloides sigillatus* (Walker) (Orthoptera: Gryllidae).** *Bioved*, v. 3(2): p. 169-174, 1992 (15 ref, Eng).

The inhibitory action of *C.roseus* (Periwinkle) was studied. Topical application of this plant extract was performed to newly hatched VII instar female nymphs at varied concentrations viz., 0.25, 0.50, 0.75 and 1.00 percent. All the concentrations tested effectively reduced the fecundity ranged between 66.27 and 83.74. The resulting changes in fecundity were due to the toxicity of the plant extract used. Reductions in fecundity were also concentration dependent. NSL, New Delhi.

9302-1000 Sukari, M.A., Rahmani, M., Manas, A., Takahashi, S. (Pesticide Research Institute, Faculty of Agriculture, Kyoto University, Kyoto 606, Japan) **Toxicity studies of plant extracts on insects and fish.** *Pertanika*, v. 15(1): p. 41-44, 1992 (12 ref, Eng, Mal).

The contact insecticidal activity test of the extract plants namely, *Mentha arvensis*, *Eugenia caryophyllus*, *Ocimum sanctum*, *Lindera pipericarpa*, *Decaspermum momtanum* and *Cymbopogon citratus* against, mung bean weevil and toxicity test on two fish species were carried out. The volatile fraction of above plants was analysed for major components. The main components isolated are piperitenon from *M.arvensis*, eugenol from *Eugenia*, citral and geraniol from *Cymbopogon* and mono- and sesquiterpenes from *D.momtanum*.

9302-1001 Susha, C., Kamavar, G.K.*(Department of Zoology, University of Kerala, Karivattom, Thiruvananthapuram 695 581, Kerala, India) **Effect of azadirachtin on vitellogenic oocyte development in *Trogoderma granarium* Everts (Coleoptera: Dermestidae).** *Indian Journal of Experimental Biology*, v. 31(2): p. 188-190, 1993 (21 ref, Eng).

Azadirachtin, a major component of neem (*Azadirachta indica*) seed extract, inhibits feeding, growth and reproduction in insects. In *T.granarium* a reduction in the vitellogenic number was observed when pupae were topically treated with azadirachtin. Disruption of the hormonal control of oocyte development is hypothesized to be the mode of action of azadirachtin.

Phytochemistry

9302-1002 Achenbach, H., Frey, D.(Institute of Pharmacy and Food Chemistry, Department of Pharmaceutical Chemistry, University of Erlangen, 8520 Erlangen, Germany) **Cycloartanes and other terpenoids and phenylpropanoids from *Monocyclanthus vignei*.** *Phytochemistry*, v. 31(12): p. 4263-4274, 1992 (46 ref, Eng).

From the petrol extract of the stem bark of *M.vignei* 30 terpenoids and two phenylpropanoids have been isolated and their structures established, among them 17 new cycloartane-type compounds. Geranic acid and beta-caryophyllene were found to be the major constituents.

9302-1003 Adzet, T., Ponz, R., Wolf, E.* , Schulte, E.(MCM Klosterfrau Gmbh & Co, D(W)-5000 Koln, Federal Republic of Germany) **Content and Composition of *M.officinalis* oil in relation to leaf position and harvest time.** *Planta Medica*, v. 58(6): p. 562-564, 1992 (12 ref, Eng).

The content and composition of the essential oil in the leaves of *Melissa officinalis* under Mediterranean climatic conditions were investigated. Different leaf positions and different times of harvest during the year and during the day were considered. It was shown that in the terminal leaves, the content of essential oil was more than 0.1 percent higher than in the others. The results obtained also indicated a variation of the oil composition. The favourable climatic and environmental conditions off the Ebro-Delta in Spain permitted four harvests per year with a maximum of 0.4 percent essential oil in September. To reduce losses of volatile terpenoids, a harvest in the morning during summer-time is recommended.

9302-1004 Agarwal, K., Popli, S.P.(Central Institute of Medicinal and Aromatic Plants, RSM Nagar, Lucknow, 226016, UP, India) **The constituents of *Crescentia cujete* leaves.** *Fitoterapia*, v. 63(5): p. 476, 1992 (4 ref, Eng).

Isolation of beta-sitosterol, stigmasterol, alpha and beta-amyrin, palmitic and stearic acids, triacontanol from the petrol extract of leaves and aucubin, asperuloside and plumieride (iridoid glycosides) from the butanol extract of leaves of *C.cujeta* is reported.

9302-1005 Ahmad, M.U., Islam, M.R., Mirza, A.H., Chowdhury, B.H., Nahar, N.(Department of Chemistry, Jahangirnagar University, Savar, Dhaka, Bangladesh) **Alkaloids of *Jatropha gossypifolia*.** *Indian Journal of Chemistry*, v. 31B(1): p. 67-69, 1992 (7 ref, Eng).

Exudate of *J.gossypifolia* yielded four alkaloids. Three alkaloids have been characterised as imidazoles and the other one as a pyridine alkaloid.

9302-1006 Ahmad, M.V., Islam, M.R., Mirza, A.H., Chowdhury, B.H., Nurun Nahar (Department of Chemistry, Jahangirnagar University, Savar, Dhaka, Bangladesh) **Alkaloids of *Jatropha gossypifolia* Linn..** *Indian Journal of Chemistry*, v. 31B(1): p. 67-69, 1992 (7 ref, Eng).

The exudate of *J.gossypifolia* afforded four alkaloids, three of which have been characterized, two as imidazoles and the other one as a piperidine alkaloid.

9302-1007 Ahmed, B., Chung-Ping Yu (Department of Pharmaceutical Chemistry, Jamia Hamdard, Hamdard University, Hamdard Nagar, New Delhi 110062, India) **Boravine, a dihydroisofuranoxanthone from *Boerhaavia diffusa*.** *Phytochemistry*, v. 31(12): p. 4382-4384, 1992 (12 ref, Eng).

A new dihydroisofuranoxanthone (C₂₀H₁₈O₇, mp 230-32, degree C), methyl 3,10-dihydro-11-hydroxy-1-methoxy-4,6-dimethyl-10-oxo-1H-furo [3,4-b] xanthene-3-carboxylate, designated as borhavine, has been isolated and characterized from the benzene extract of the roots of *B.diffusa*.

9302-1008 Ahmed, W., Khan, A.Q., Malik, K.A.* , Ergun, F., Sener, B. (H E J Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Pyrrolizidine and secopyrrolizidine alkaloids from *Senecio racemosus*.** *Journal of Natural Products*, v. 55(12): p. 1764-1767, 1992 (19 ref, Eng).

Studies of the alkaloidal constituents of *S.racemosus* have resulted in the isolation of sarracine and 9-angelylplatynecine, along with a new secopyrrolizidine base, senecioracenine. The structure of senecioracenine has been assigned on the basis of spectral studies including 2D NMR.

9302-1009 Akihisa, T., Kokke, W.C.M.C. , Tamura, T., Nambara, T. (College of Science and Technology, Nihon University, 1-8, Kanda Surugadai, Chiyoda-ku, Tokyo 101, Japan) **7-Oxodihydrokarounidiol {7-oxo-D:C-friedo-olean-8-ene-3 α ,29-diol}, a novel triterpene from *Trichosanthes kirilowii*.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1199-1202, 1992 (21 ref, Eng).

The structure of 7-oxodihydrokarounidiol {7-oxo-D:C-friedo-olean-8-ene-3 α ,29-diol}, isolated from the seeds of *T.kirilowii*, was determined by chemical correlation with karounidiol {D:C-friedo-oleana-7,9(11)-diene-3 α ,29-diol} from the same source. Two other natural products, viz., bryonolic acid (3 β -hydroxy-D:C-friedo-olean-8-en-29-oic acid) and bryonomic acid

(3-oxo-D:C-friedo-olean-8-en-29-oic acid), were also correlated with karounidiol.

9302-1010 Al-Easa, H.S., Kamel, A., Rizk, Abdel-Fattah M. (Scientific and Applied Research Center, Qatar University, PO Box 2713, Doha, Qatar) **Flavonoids from *Centaurea sinaica*.** *Fitoterapia*, v. 63(5): p. 468-469, 1992 (13 ref, Eng).

Cirsiliol, isorhamnetin, salvigenin and 5,7,4'-trihydroxy-3,3'-dimethoxyflavone (isorhamnetin-3-O-methylether) have been isolated from the dried aerial parts of *C.sinaica*.

9302-1011 Al-Jaber, N.A., Mujahid, T.G. , Al-Hazimi, M.G. (Department of Chemistry, King Saud University, P.O.Box 2455, Riyadh, 11451, Saudi Arabia) **Secondary metabolites of chenopodiaceae species.** *Journal of the Chemical Society of Pakistan*, v. 14(1): p. 76-84, 1992 (103 ref, Eng).

The alkaloids, triterpenoids, flavonoids, and steroids occurring in various members of the chenopodiaceae have been reviewed.

9302-1012 Amoros, M., Simoes, C.M.O., Girre, L., Sauvager, F., Cormier, M. (Laboratoire de Pharmacognosie et Mycologie, Faculte de Pharmacie, Universite de Rennes 1, Rennes, France) **Synergistic effect of flavones and flavonols against herpes simplex virus type 1 in cell culture. Comparison with the antiviral activity of propolis.** *Journal of Natural Products*, v. 55(12): p. 1732-1740, 1992 (30 ref, Eng).

The in vitro activity against herpes simplex virus type 1 of senecioracenine of the major flavonoids identified in propolis was investigated. Flavonols were found to be more active than flavones, the order of importance being galangin, kaempferol, and quercetin. The efficacy against HSV-1 of binary flavone-flavonol combinations has been also investigated. The synergy demonstrated by all combinations could explain why propolis is more active than its individual compounds.

9302-1013 Appendino, G., Gariboldi, P. , Pisetta, A., Bombardelli, E., Gabetta, B. (Dipartimento di Scienza e Tecnologia del Farmaco, Via P. Giuria 9, I-10125, Torino, Italy) **Taxanes from *Taxus baccata*.** *Phytochemistry*, v. 31(12): p. 4253-4257, 1992 (12 ref, Eng).

A winter collection of yew needles gave two pairs of taxicin-I and taxicin-II diesters, the structures of which were established by spectral data and chemical reactions. The mixture of these diesters might correspond to the so-called 'desdimethylaminotaxine' of the old literature on yew. A detailed NMR analysis of the diesters allowed an

unambiguous assignment of all ^1H and ^{13}C NMR resonances of these and related taxane derivatives.

9302-1014 Appendino, G., Lusso, P., Gariboldi, P., Bombardelli, E., Gabetta, B. (Dipartimento di Scienza e Tecnologia del Farmaco, Via Pietro Giuria 9, I-10125 Torino, Italy) **A 3,11-cyclotaxane from *Taxus baccata*.** *Phytochemistry*, v. 31(12): p. 4259-4262, 1992 (10 ref, Eng).

A collection of yew needles afforded a taxane diester characterized by an additional bond between C-3 and C-11. The structure was elucidated by spectral methods, and further confirmed by synthesis from a known taxane derivative. A general procedure for the photocyclization of taxicins is reported.

9302-1015 Arbin, D. (Department of Pharmacy, FMIPA, University Andalas, P.O.Box 143, Kampus Limau Manis, Padang 25163, Indonesia) **Chemical study of some sumatran traditional medicinal plants.** *International Seminar Traditional Medicine, Calcutta, 7-9 November*, p. 159-160, 1992 (Eng).

In the last decade more than one thousand Sumatran plants have been collected and tested for alkaloids using Culvenor-Fitzgerald method. Some alkaloid bearing plants having traditional medicinal value have been selected for chemical study. As a result *Ophiorrhiza major*, *O. discolor*, *O. filistipula*, *O. longiflora*, *O. teysamaniana*, *O. communis*, *O. cf. ferruginea*, *Cephaelis stipulacea*, *Uncaria glabrata*, *Lerchae bracteata*, *Margaritaria indica*, *Spium baccatum*, *Antidesma montana* and *A. tetrandra* have yielded some new and known alkaloids. The traditional use, isolation, structure elucidation and preliminary biological activity test were discussed. (Abstr. No. P9.19).

9302-1016 Baek, N.I., Kim (Jun), H., Lee, Y.H., Park, J.D., Kang, K.S., Kim, S. (Laboratory of Natural Products, Korea Ginseng & Tobacco Research, Institute, Science Town, Yusung PO Box 7, Daejeon, Korea) **A new dehydrodieugenol from *Magnolia officinalis*.** *Planta Medica*, v. 58(6): p. 566-568, 1992 (7 ref, Eng).

Eugenol derivatives, O-methyleugenol 5,5'-di-2-propenyl-2-hydroxy-3,2',3'-trimethoxy-1,1'-biphenyl, and 4,4'-di-2-propenyl-3,2'-6'-trimethoxy-1,1'-diphenyl ether have been isolated from the bark of *M. officinalis* and their structures determined. Compound 2 exhibited antioxidant activity against lipid peroxidation mixture contained in rat liver microsomes.

9302-1017 Banerji, J., Das, B., Bose, P., Chakrabarty, R., Chatterjee, A. (Department of Chemistry, University College of Science, 92 APC Road, Calcutta 700009, India)

Phytochemical investigations on *Jatropha gossypifolia* L.. *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p.85, 1992 (Eng).

Extensive work on *J. gossypifolia* culminated in the isolation of four new lignans -jatrophan (2-piperonylidene-3-veratryl-3S-gamma-butyrolactone), gadain (2-piperonylidene-3-piperonyl-3S-gamma-butyrolactone), prasanthaline (2-piperonylidene-3-veratryl-3R-1, 4-diacetoxybutane) and anarylnaphthalene lignan (2,3-bis(hydroxymethyl-6,7-methylenedioxy-1-(3'-4'-dimethoxy phenyl)-naphthalene). The structures of these compounds have been deduced from detailed spectral analyses, chemical correlation studies and syntheses. (Abstr. No. IL 14B).

9302-1018 Banerjit, A., Das, P.C., Joshi, P.C., Mandal, S., Mosihuzzaman, M. (Centre of Advanced Studies, Department of Chemistry, University College of Science and Technology, 92, A.P.C. Road, Calcutta 700 009, India) **Chemical and pharmacological investigation of ananta-mul (*Hemidesmus indicus* R.Br.).** *International Seminar Traditional Medicine, Calcutta, 7-9, November*, p. 165, 1992 (Eng).

H. indicus popularly known as Indian Sarsaparilla finds extensive application in the Indian system of Medicine as blood purifier and anti-rheumatic agent. Chemical constituents and pharmacological investigations of Ananta-Mul, have been studied. (Abstr.No. P.9.27).

9302-1019 Barba, B., Diaz, J.G., Herz, W. (Department of Chemistry, The Florida State University, Tallahassee, FL 32306, USA) **Anthraquinones and other constituents of two *Senna* species.** *Phytochemistry*, v. 31(12): p. 4374-4375, 1992 (7 ref, Eng).

Roots of *S. lindheimeriana* furnished a number of 9,10-anthraquinones including 1-hydroxy-3-methyl-2,6,7,8-tetramethoxy-9,10-anthraquinone, new as a natural product, a rare neolignan, four flavonoids and several common plant constituents. Leaves of *S. corymbosa* gave several known 9,10-anthraquinones including 5,7'-biphyscion as well as common plant constituents.

9302-1020 Baser, K.H.C., Kirimer, N., Ozek, T., Kurkcuoghi, M., Tumen, G. (Anadobe University, Medicinal Plants Research Centre 26470, Ekisehir, Turkey) **The essential oil of *Thymus leucostomus* var. *argillaceus*.** *Journal of Essential Oil Research*, v. 4(4): p. 421-422, 1992 (1 ref, Eng).

Water distilled essential oil of *T. leucostomus* var. *argillaceus* was studied by GC/MS. Fifty eight compounds representing 96.68 percent of the oil were characterized of which thymol 27 percent and carvacrol (22 percent) were the major constituents.

9302-1021 Baser, K.H.C., Ozturk, N. (Anadolu University Medicinal Plants Research Center, 26470, Eskisehir, Turkey) **Composition of the essential oil of *Dorstenia hastata*, a monotypic endemic from Turkey.** *Journal of Essential Oil Research*, v. 4(4): p. 369-374, 1992 (11 ref, Eng).

GC and GC/MS analysis of the essential oils of leaves, spikes, flowering leafy branches and woody stems of *D. hastata* were conducted. Forty-seven compounds representing 87-98 percent of the oils were identified. Oil compositions varied according to the mode of distillation, plant part and collection site. Major components included 1,8-cineole, alpha-pinene, borneol, guaiaol and camphor.

9302-1022 Basey, K., McGaw, B., Wooley, J.G.* (Natural Products Research, School of Applied Sciences, De Montfort University, Leicester, LE1, 9BH, UK) **Phygrine, an alkaloid from *Physalis* species.** *Phytochemistry*, v. 31(12): p. 4173-4176, 1992 (22 ref, Eng).

A new alkaloid, phygrine, isolated from the roots and aerial parts of *P. alkekengi* has been shown to be bis-hygrine or 1-(1'-methylpyrrolidine-3-yl)-3-(1"-methyl-2"-(2"-oxopropyl)pyrrolidine-5"-yl)propan-2-one. The alkaloid is also present in *P. angulata*, *P. philadelphica*, *P. ixocarpa*, *P. edulis*, *P. peruviana*, *P. minima*, *P. pubescens*, *P. viscosa* and *P. pruinosa*.

9302-1023 Bhatt, V.H., Amin, R.J., Pandya, C.B. (Department of Agricultural Health and Industrial Hygiene, National Institute of Occupational Health, Meghani Nagar, Ahmedabad 380016, Gujarat, India) **Elemental contents of roots of *Anacyclus pyrethrum*.** *Indian Journal of Chemical Sciences*, v. 5: p. 97-99, 1991 (15 ref, Eng).

Roots of indigenous medicinal plant *A. pyrethrum* were analysed by AAS and FP for heavy metals and minerals. The metallic and mineral content was found to be $Mu^{2+}=24.7\pm1.51$; $2n^{2+}=22.01\pm1.3$; $Cu^{2+}=9.15\pm0.7$ (mcg/gm dried root) and $Na^{+}=20.13\pm4.09$; $K^{+}=12.13\pm0.2$ (mg/gm dried root) respectively. NSL, New Delhi.

9302-1024 Bianco, A., Marini, B.E., Nicoletti, M., Foddai, S., Garbarino, J.A., Piovan, M., Chamy, M.T. (Centro CNR per lo Studio della Chimica delle Sostanze Naturali and Dipartimento di Chimica, Universita "La Sapienza", PA Moro 5, 00185 Roma, Italy) **Bis-iridoid glucosides from the roots of *Argyria radiata*.** *Phytochemistry*, v. 31(12): p. 4203-4206, 1992 (11 ref, Eng).

The iridoid glucoside fraction from roots of *A. radiata* contains, in addition to the known compounds argylioside, catapol and 8-epideoxyloganic acid, the new bis-iridoid glucosides radiatoside E and F. Radiatoside E contains a 3,4-dihydrocatapol moiety.

9302-1025 Bilia, A., Flamini, G., Pistelli, L., Morelli, I. (Dipartimento di Chimica Bioorganica, Universita degli Studi di Pisa, via Bonanno 33, 56126, Pisa, Italy) **New constituents from *Pyracantha coccinea* leaves.** *Journal of Natural Products*, v. 55(12): p. 1741-1747, 1992 (17 ref, Eng).

From the leaves of *P. coccinea* four new compounds, 2'-(3-methylbut-2-enyloxy)-6-methoxyangelicin (pyracanthin A) 2'-(3-methylbut-2-enyloxy)-6-hydroxyangelicin (pyracanthin B) 5,7,3',4'-tetrahydroxy-7-O-{6"-O-(acetyl)-beta-D-glucopyranosyloxy}-flavanone (coccinoside A) and 5,7,2'-5',-tetrahydroxy-7-O-beta-D-glucopyranosyloxyflavanone (coccinoside B), besides scopoletin, 5,7,2'-5'-tetrahydroxyflavanone, borneolapiosylglucopyranoside, and beta-ionol glucopyranoside were isolated and identified.

9302-1026 Boelens, M.H., Jimenez, R. (Destilaciones Bordas Chinchurreta SA, PO Box 11, Seville, Spain) **Chemical composition of Spanish Myrtle oil. Part II.** *Journal of Essential Oil Research*, v. 4(4): p. 349-353, 1992 (4 ref, Eng).

Chemical composition of Spanish wild growing myrtle leaves, flowers, unripe and ripe fruits were examined. The yields of the hydrodistilled oils were: leaves, 0.4-0.5 percent flowers, 0.4 percent, unripe fruits, 0.5 percent, and ripe fruits 0.02 percent. Significant differences were found in the concentrations of the main constituents of the oils ex. alpha-pinene (7.20 percent), 1,8-cineole (16.5-61.5 percent) and myrtenyl acetate (0.1 to 36 percent). Apart from the variation in the yields during ripening (0.5-0.02 percent) the concentration of the constituents viz., 1,8-cineole increased from 19.5 percent to 61.5 percent while myrtenyl acetate decreased from 33.0 to 0.1 percent.

9302-1027 Boonyaraavej, S., Tantayanontha, S., Kitchanacai, P., Chaichantipyuth, C., Chittawong, V., Miles, D.H. (Department of Chemistry, University of Central Florida, Orlando, Florida 32816, USA) **Trans-triacontyl-4-hydroxy-3-methoxycinnamate, a new compound from the Thai plant *Bridelia ovata*.** *Journal of Natural Products*, v. 55(12): p. 1761-1763, 1992 (4 ref, Eng).

24-methylanostra-9(11)-25-dien-3-one, 24, 24-dimethylanostra-9(11)-25-dien-3-one, friedelin, friedelan-3-beta-ol, beta-sitosterol, stigmasterol, campesterol, and trans-triacontyl-4-hydroxy-3-methoxycinnamate were isolated from the Thai plant *B. ovata*. The structures were elucidated by chemical and spectroscopic evidence. Compounds (C₄₀H₇₀O₄, mp 73-74 degree) has not previously been reported in the literature and is a novel natural product.

9302-1028 Brown, G.D. (Chemistry Department, Nottingham University, University Park, Nottingham, NG7 2RD, UK) **Two new compounds from *Artemisia annua***. *Journal of Natural Products*, v. 55(12): p. 1756-1760, 1992 (28 ref, Eng).

Two novel compounds, 5-nonadecylresorcinol 3-O-methyl ether (phenol-3-methoxy-5-nonadecyl) and dihydro-epideoxyarteannuin B, were isolated from the aerial parts of *A. annua*. Several long chain 5-alkyl resorcinols have been described previously, but this is the first report of a monomethylated 5-alkyl resorcinol. A number of known compounds not previously reported for *A. annua* are also described.

9302-1029 Brunke, E.J., Hammerschmidt, F.J., Schmaus, G. (Dragococ, Forschung, Holzminden, Germany) (**Essential oil of *Santolina chamaecyparissus* L.**). *Parfumerie und Kosmetik*, v. 73(9): p. 617-628, 1992 (28 ref, Eng, Ger).

Out of about 100 components identified in the essential oil of *S. chamaecyparissus* beta-pinene, sabinene, myrcene, beta-phellandrene, artemisia ketone and longiberbinone are the major ones.

9302-1030 Buchbauer, G., Jirovetz, L. (Institute of Pharmaceutical Chemistry, University of Vienna, Währingerstrasse 10, A 1090 Vienna, Austria) **Volatile constituents of the essential oil of *Passiflora incarnata* L.** *Journal of Essential Oil Research*, v. 4(4): p. 329-334, 1992 (8 ref, Eng).

Volatile constituents of essential oil of *P. incarnata* were investigated by GC, GC/MS and GC/FTIR. The main components were hexanol (1.4 percent), benzyl alcohol (4.1 percent), linalool (3.2 percent), 2-phenylethyl alcohol (1.2 percent), 2-hydroxybenzoic acid methyl ester (1.3 percent), carvone (8.1 percent), trans-anethole (2.6 percent), eugenol (1.8 percent), isoeugenol (1.6 percent), beta-ionone (2.6 percent), alpha-bergamotol (1.7 percent), phytol (1.9 percent) and palmitic acid (7.2 percent) and oleic acid (6.3 percent).

9302-1031 Camacho, M.R., Chavez, D., Mata, R., Palacios-Rios, M. (Laboratorio de Fitoquímica, Division de Bioquímica y Farmacia, Facultad de Química, Universidad Nacional Autónoma de México, Coyoacán 04510, México D.F., México) **Constituents of *Equisetum myriochaetum***. *Fitoterapia*, v. 63(5): p. 471-472, 1992 (6 ref, Eng).

Isolation of pinocembrin (0.012 percent), chrysin (0.0019 percent), beta-sitosterol (0.02 percent), beta-D-glucosylsitosterol (0.01 percent), beta-D-glucose (0.017 percent) and a mixture of fatty acids (0.03 percent) com-

posed by lauric, myristic, pentadecanoic, palmitic, margaric, stearic, behenic and lignoceric acids.

9302-1032 Cart, J., Reznicek, G., Korhammer, S., Haslinger, E., Jurenitsch, J., Kubelka, W. (Institut für Pharmacognosie, Universität Wien, A-1090 Wien Austria) **A further new triterpene saponin from *Herniaria glabra***. *Scientia Pharmaceutica*, v. 60(3): p. 161, 1992 (4 ref, Eng).

The isolation and identification of *herniaria* saponin I and II from the methanol extract of aerial parts of *H. glabra* has been reported. The structure of *herniaria* saponin II, a new triterpene saponin was determined by GC-MS and FAB-MS and NMR techniques.

9302-1033 Chakravarty, A.K., Mukhopadhyay, S. (Indian Institute of Chemical Biology, Calcutta 700032, WB, India) **More of swertane triterpenoids from *Swertia chirata* Buch-Ham.** *Indian Journal of Chemistry*, v. 31B(1): p. 70-71, 1992 (3 ref, Eng).

A new triterpenoid characterized as Swerta-7, 9(11)-dien-3-beta-ol along with pichierenol both belonging to swertane skeleton has been isolated from the petroleum ether extract of whole plant of *S. chirata*. Its structure has been elucidated on the basis of data and chemical correlation.

9302-1034 Chakravarty, A.K., Mukhopadhyay, S., Masuda, K., Ageta, H. (Indian Institute of Chemical Biology, Calcutta 700 032, WB, India) **More of swertane terpenoids from *Swertia chirata* Buch-Ham.** *Indian Journal of Chemistry*, v. 31B(1): p. 70-71, 1992 (6 ref, Eng).

A new triterpenoid characterised as *Swertia* 7,9-(11)-dien 3beta-ol along with Pichierenol both belonging to swertane skeleton, has been isolated from *S. chirata*. Its structure has been elucidated on the basis of spectral data and chemical correlation.

9302-1035 Chamblee, T.S., Clark, B.C. (Corporate Research and Development, Department, The Cocoa Cola Company, Atlanta, Georgia, USA) **Lemon and lime Citrus essential oils: Analysis and organoleptic evaluation** (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 732, 1992 (Eng).

The techniques used to obtain an accurate qualitative and quantitative analysis of lime and lemon essential oils have been reviewed. Differences between Sicilian and California lemon peel oil and Mexican lime peel oil have been clarified. The HPLC separated oxygenated fractions of Sicilian lemon peel oil have been evaluated organoleptically by a panel of experts using a capillary GC mg port. Relative

intensity factors was assigned to lemon oil oxygenated constituents which were ranked according their importance to lemon flavour. Many unidentified trace constituents were also evaluated and ranked. Stability of lemon flavour constituents has also been discussed.

9302-1036 Chan, K.L., Iitaka, Y., Noguchi, H., Sugiyama, H., Saito, I., Sankawa, U. (School of Pharmaceutical Sciences, University of Science Malaysia, Penang 11800, Malaysia) **6alpha-Hydroxyeurycomalactone, a quassinoid from Eurycoma longifolia.** *Phytochemistry*, v. 31(12): p. 4295-4298, 1992 (12 ref, Eng).

The structure of 6alpha-hydroxyeurycomalactone, a new C19 quassinoid, isolated from the roots of *E.longifolia* has been established from spectral and by single crystal X-ray analysis; eurycomalactone was also isolated. The cytotoxic activity of some quassinoids from this plant is not mediated through DNA cleaving properties.

9302-1037 Chawla, A.S., Sharma, A.K., Handa, S.S., Dhar, K.L. (Department of Pharmaceutical Sciences, Punjab University, Chandigarh 160014, India) **Lignan From Vitex negundo seeds.** *Phytochemistry*, v. 31(12): p. 4378-4379, 1992 (3 ref, Eng).

The seeds of *V.negundo* afforded a new lignan characterized as 6-hydroxy-4-(4-hydroxy-3-methoxyphenyl)-3-hydroxymethyl-7-methoxy-3,4-dihydro-2-naphthaldehyde by spectroscopic methods.

9302-1038 Cheng Chunquan, Liu Jikai*, Wu Dagang (Department of Chemistry, Zhongshan University, Guangzhou 510275, P.R.China) **Forrestine, an alkaloid from Tripterygium forrestii.** *Phytochemistry*, v. 31(12): p. 4391-4392, 1992 (7 ref, Eng).

The root-bark of *T.forrestii* afforded wilfordine, wilforine and a new sesquiterpene alkaloid, named forrestine (mp 113-15 degree C). Forrestine was shown to be a benzoylonymine by comparison of its ¹H NMR data with those of known compounds.

9302-1039 Chini, C., Bilia, A.R., Keita, A., Morelli, I. (Dipartimento di Chimica Bioorganica, Univesita di Pisa, via Bonanno 33, I-56126 Pisa, Italy) **Protoalkaloids from Boscia angustifolia.** *Planta Medica*, v. 58(5): p. 476, 1992 (11 ref, Eng).

Protoalkaloids with a pyrrolidine moiety were isolated from the dried leaves and bark of *B.angustifolia*. The two major compounds isolated were identified as stachydrine and 4-hydroxystachydrine on the basis of spectral analysis.

9302-1040 Chu, A., Zajicek, J., Davin, L.B., Lewis, N.G.*, Croteau, R.B. (Institute of Biological Chemistry, 467 Clark Hall, Washington State University, Pullman, WA 99163, USA) **Mixed acetoxo-benzoxo taxane esters from Taxus brevifolia.** *Phytochemistry*, v. 31(12): p. 4249-4252, 1992 (8 ref, Eng).

Three new taxane derivatives were isolated from the bark of *T.brevifolia* and their structures established as 5beta, 20-epoxy-1beta-hydroxy-4alpha, 7beta, 13alpha-triacetoxo-2alpha, 9alpha, 10beta-tribenzoxo-tax-11-ene, 2alpha, 10beta-dibenzoxo-20-epoxy-1beta-hydroxy-4alpha, 7beta, 9alpha-13alpha-tetraacetoxo-tax-11-ene and 2alpha, 7beta-dibenzoxo-5beta, 20epoxy-1beta-hydroxy-4alpha, 9alpha, 10beta, 13alpha-tetraacetoxo-tax-11-ene.

9302-1041 Claude-Lafontaine, A., Raharivelomanana, Bianchini, J.P., Schippa, C., Azzaro, M., Cambon, A. (Universite Francaise du Pacifique, Centre Universitaire de Papeete BP 4635 Papeete, Tahiti, Polyne'sie Francaise) **Volatile constituents of the flower concrete of Gardenia taitensis DC.** *Journal of Essential Oil Research*, v. 4(4): p. 335-343, 1992 (14 ref, Eng).

Volatile constituents of *G.taitensis* yielded linalool (4.4 percent), methylsalicylate (2.5 percent), (Z)-3-hexenyl benzoate (2.2 percent), dihydroconiferyl alcohol (1.1 percent), Z-3-hexenyl salicylate (0.7 percent), benzyl benzoate (6.2 percent) dihydroconiferyl acetate (12.2 percent), 2-phenylethyl benzoate (6.2 percent), benzyl salicylate (2.5 percent), geranyl benzoate (2.1 percent), and phenylethyl salicylate (2.2 percent).

9302-1042 D'Agostino, M., De Simone, F., Zhong Liang Zhou, Pizza, C. (Dipartimento di Chimica delle Sostanze Naturali, Universita di Napoli "Federico II", via Domenico Montesano, 49, 80131 Napoli, Italy) **Flavonol glycosides from Tagetes elliptica.** *Phytochemistry*, v. 31(12): p. 4387-4388, 1992 (8 ref, Eng).

Two new flavonol glycosides, quercetin 3-(3",6"-diacetylgalactoside) and quercetin 3-(2",3",4"-tri-acetylgalactoside) have been isolated from a methanolic extract of *T.elliptica* and identified on the basis of chemical and spectral data. The known compounds quercetin 3-galactoside, isorhamnetin 3-rhamnosyl (1-6) glucoside, myricetin 3-glucoside, quercetin, isorhamnetin 3-galactoside, quercetin 3-(6"-galloyl)galactoside, quercetin 3-rhamnoside, quercetin 3-rhamnosyl (1-6) galactoside and rhamnetin were identified from the same extract.

9302-1043 Daido, M., Fukamiya, N., Okano, M., Tagahara, K. (Interdisciplinary Studies of Natural Environment, Faculty of Integrated Arts and Sciences, Hiroshima University, Hiroshima 730, Japan) **Picrasinol C, a new**

quassinoid and its related compounds from the stem wood of *Picrasma ailanthoides*. *Journal of Natural Products*, v. 55(11): p. 1643-1647, 1992 (9 ref, Eng).

A new quassinoid, picrasinol C, (C₂₂H₂₆O₆; mp. 137-39 degree) and twelve known quassinoids were isolated from the stem wood of *P.ailanthoides*. The structures of these compounds were elucidated from spectral evidence.

9302-1044 Damtoft, S., Franzyk, H.*, Jensen, S.R.(Department of Organic Chemistry, The Technical University of Denmark, DK-2800 Lyngby, Denmark) **Excelsioside, a secoiridoid glucoside from *Fraxinus excelsior*.** *Phytochemistry*, v. 31(12): p. 4197-4201, 1992 (14 ref, Eng).

A new secoiridoid named excelsioside has been isolated from the leaves of *F.excelsior* along with several known secoiridoids and verbascoside. The compounds were identified by NMR, and the structure of excelsioside was finally assigned on the basis of a long-range selective proton decoupling (LSPD) ¹³C NMR experiment.

9302-1045 Datta, B.K., Ahmed, M., Rouf, A.S.S.(Department of Pharmacy, Dhaka University, Dhaka 1000, Bangladesh) **Rotenoids from *Boerhaavia repens*.** *International Seminar-Traditional Medicine, Calcutta 7-9 November*, p. 147, 1992 (Eng).

B.repens is a common medicinal plant of Bangladesh having reputation for its use as a remedy for dropsy. Chemical investigation of the whole plant afforded two new rotenoids, designated repenone and repenol in addition to squalene, phytol and stigmasterol. The structures of the compounds were elucidated by high field ¹H-NMR and other spectroscopic techniques (Abst. No. P.9.02).

9302-1046 Datta, B.K., Ahmed, M., Banoo, R.(Department of Pharmacy, University of Dhaka, Dhaka, Bangladesh) **Determination of some characteristics and fatty acid composition an the seed oil of *Lawsonia alba*.** *Journal of Bangladesh Academy of Sciences*, v. 16(2): p. 263-264, 1992 (5 ref, Eng).

The essential oil from the flowers of *L.alba* commonly known as Mendi, contains alpha-inone and beta-inone as chief constituents. The seeds of the plant contains nondrying viscous oil. The seed oil contains palmitic acid (27.10 percent), stearic acid (3.60 percent), oleic acid (29.50 percent) and linoleic acid (12.50 percent) as major constituents.

9302-1047 Daulatabad, C.D., Desai, V.A. , Hosamani, K.M., Jawkhande, A.M.(Department of Chemistry, Karnatak University, Dharwad 580003, India) **Novel fatty acids in *Azima tetracantha* seed oil.** *Journal of the*

American Oil Chemists's Society, v. 68(12): p. 978-979, 1991 (11 ref, Eng).

Air dried seeds of *A.tetracantha* were powdered and extracted with light petroleum and chromatographed. The oil obtained afforded ricinoleic acid (9.8 percent), cyclopropenoid fatty acids(9.6 percent), malvic (4.0 percent) and sterculic acid (5.6 percent) along with normal fatty acids.

9302-1048 De Tommasi, N., De Feo, V., De Simone, F., Pizza, C. (Dipartimento di Chimica delle Sostanze, Naturali, Universita degli Studi "Federico II", via D.Montesano, 49 80131, Napoli, Italy) **Constituents of *Bidens parviflora*.** *Fitoterapia*, v. 63(5): p. 470, 1992 (4 ref, Eng).

Isolation of jujubasterol -3beta-O-{beta-D-glucopyranosyl-(1-3)-{alpha-L-deoxytalosyl-(1-2)}-alpha-L-arabinosyl}, 6-hydroxy-coumarin, 7-hydroxy-6-methoxy-coumarin, oleanolic acid, ursolic acid, narirutin, rutin and 5,7,2',5'-tetrahydroxy-flavone from the dried aerial parts of *B.parviflora* is reported.

9302-1049 Delgado, G., Reza-Garduno, R.G. , Rios, M.Y., del Rio, F.(Instituto de Quimica de la Universidad Nacional Autonoma de Mexico, Circuito Exterior, Ciudad Universitaria, Coyoacan 04510, Mexico, DF) **Phthalides and monoterpenes of the hexane extract of the roots of *Ligusticum porteri*.** *Planta Medica*, v. 58(6): p. 570-571, 1992 (9 ref, Eng).

Two groups of compounds, monoterpene hydrocarbons, with short retention times, and phthalides, with longer retention times were isolated from the n-hexane extract of roots of *L.porteri*. The identity of the constituents was established by comparison of the mass spectral data obtained with those from the literature by using the software of the system (NBS library) and by comparing their GC retention times with those of authentic samples.

9302-1050 Demarne, F.E., Van der Walt, J.J.A.(CIRAD Reunion, F 97487, Saint-Denis Cedex, Reunion Island, France) **Composition of the essential oil of *Pelargonium vitifolium* (L.) L'Herit (Geraniaceae).** *Journal of Essential Oil Research*, v. 4(4): p. 345-348, 1992 (7 ref, Eng).

The essential oil of several natural populations of *P.vitifolium* was analysed by GC and GC/MS. The main constituents found were citronellic acid (77-85 percent) and 10-epi-gamma-eudesmol (5 percent)..

9302-1051 Didna, B., Chel, G.(Department of Chemistry, Tripura University, Agartala 799004, India) **Chemical and pharmacological studies of plumbagin derivatives.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November 1992*, p.111, (Eng).

Plumbagin (5-hydroxy-2-methylnaphthoquinone), an antitumor and antimicrobial drug was isolated from traditional herb, *Plumbago indica* (local name: Raktchita) as major active principle. For improvement of activities of this herbal drug, some derivatives of plumbagin were prepared by reactions with bromine in chloroform, hydrogen cyanide in mineral acid, and nitrous acid. The chemistry and activities of the prepared derivatives would be discussed. (Abst.No. p.7.17).

9302-1052 Dixit, G.S., Tewari, R.P.(UP Sugarcane Research Council, Shahjahanpur, UP, India) **Chemical constituents of *Kleinhovia hospita* Linn..** *Sachitra Ayurved*, v. 44(6): p. 426, 1991 (2 ref, Eng).

Kaempferol, quercetin and rutin have been isolated from the alcoholic extract of the roots of *K.hospita* and identified.

9302-1053 Dobhal, M.P., Joshi, Y.C., Joshi, P.(Department of Chemistry, University of Rajasthan, Jaipur 302004, India) **A review on genus *Rhododendron*. Part II.** *Herba Polonica*, v. 37(2): p. 89-94, 1991 (25 ref, Eng, Pol).

Chemical composition of 22 species belonging to the genus *Rhododendron* have been surveyed. Medicinal properties of some species have also been reported.

9302-1054 Duband, F., Carnat, A.P., Carnat, A., Petitjean-Freytet, C., Clair, G., Lamaison, J.L(Laboratoire de Pharmacognosie et Phytothérapie, Faculté de Pharmacie, 28, Place Henri-Dunant, F-63000 Clermont-Ferrand, France) **(The aromatic and polyphenolic composition of peppermint *Mentha x piperita* L. tea).** *Annales Pharmaceutiques Francaises*, v. 50(3): p. 146-155, 1992 (16 ref, Eng, Fre).

The qualitative and quantitative composition of the main aromatic and polyphenolic constituents of Mitcham type peppermint *Mentha x piperita* tisane, were examined and compared with those of leaves before and after infusion. The original peppermint leaves contained 2.4 percentage essential oil of which menthol was 0.99 percent, total polyphenolic compounds 19 percent and total flavonoid compounds 12 percent comprising eriocitrin 7 percent, luteolin-7-rutinoside 1.5 hesperidoside 0.6 percent and total hydroxycinnamic compounds 7 percent (rosmarinic acid 1.4 percent). The tisane contained 21 percent of the original essential oil corresponding to 25 mg/l, with increased alcohol and ketone contents and lower contents of hydrophobic terpenecarbons, oxides and esters. It also contained a high proportion of the polyphenolic compounds (about 750 mg/l) corresponding to an extraction yield of 75 percent. Consequently the monograph. "Peppermint leaf" of the Pharmacopoeia should be amended.

9302-1055 Duh, P.D., Yeh, D.B., Yen, G.C.(Department of Food Science, National Chung Hsing University, Taichung, Taiwan, Republic of China) **Extraction and identification of an antioxidative component from peanut hulls.** *Journal of the American Oil Chemists' Society*, v. 69(8): p. 814-818, 1992 (27 ref, Eng).

Methanol extraction of hulls from peanuts produced a higher yield of a component having stronger antioxidant activity than other organic solvents. Purification of the fractions afforded a compound with antioxidant activity of 94.8 percent. The active component was identified as luteolin.

9302-1056 Duhan, A., Chauhan, B.M.*, Punia, D.(Department of Foods and Nutrition, Haryana Agricultural University, Hisar 125004, Haryana, India) **Nutritional value of some non-conventional plant foods of India.** *Plant Foods for Human Nutrition*, v. 42(3): p. 193-200, 1992 (10 ref, Eng).

Thirteen non-conventional foods including fruits, leaves and grains consumed in various parts of the Indian subcontinent were analysed for their nutritional value. Khejri beans (*Prosopis cineria*), Pinju (*Capparis decidua*) and Kachri (*Cucumis*) species contained considerable amounts of protein (15-18 percent). Kachri was rich in fat (13 percent). Bhakri (*Tribulus terrestris*), Gullar (*Ficus glomerata*) and Peehl (*Salvadora oleoides*) were found to be rich sources of calcium; Gullar contained about 15 times the amount of calcium present in wheat. Phosphorus content of Santhi (*Boernavia diffusa*), Khejri beans, Bhakri, Pinju and Lehsora (*Cordia dichotoma*) were noticeable. Zinc was present in high amounts in Peepalbanti (*Ficus religiosa*) and Gullar; as was iron in Santhi and Bhakri and manganese in Santhi. Besides iron, zinc and calcium, Pinju contained appreciable amounts of beta-carotene and vitamin C. However, Santhi contained high amounts of oxalic acid.

9302-1057 Dung, N.X., Nam, V.V., Huong, H.T., Lectercq, P.A. (Department of Technical Chemistry, University of Hanoi, 19 Le Thanh Tong Street, Hanoi, Vietnam) **Chemical composition of the essential oil of *Artemisia vulgaris* L. var. *indica* Maxim from Vietnam.** *Journal of Essential Oil Research*, v. 4(4): p. 433-434, 1992 (6 ref, Eng).

Essential oil of the leaves of *A.vulgaris* var. *indica* has been analysed by a combination of GC and GC/MS. Forty six components have been identified of which the major ones were found to be beta-caryophyllene (24.1 percent) and beta-cubebene (12.0 percent).

9302-1058 Dwivedi, K.K., Singh, R.H.(Department of Kayachikitsa, Faculty of Ayurveda, IMS, BHU, Varanasi, UP, India) **A study on Asvagandha (*Withania somnifera***

Dunal). *Proceedings of the National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992*, p. 9 (Eng).

Up-to-date information about alkaloids, fatty acids and other chemical compounds of *W.somnifera*, pharmacological and clinical studies have been presented.

9302-1059 Ellnain Wojtaszek, M., Kowaleswski, Z., Bialecka, L. (Katedra i Zaklad Farmakognozi Akademii Medycznej im. K.Marcinkowskiego, ul. Sieroca 10, 61-771 Poznan, Polska) **Investigations regarding flavonoid compounds in flowers of *Caltha palustris* L. (Ranunculaceae).** *Herba Polonica*, v. 37(3-4): p. 125-132, 1991 (15 ref, Eng, Pol).

The methanolic extracts were prepared from the dried flowers, purified and fractionated. Using column and preparative chromatography 10 flavonoid compounds were isolated. The structures of 6 compounds have been determined as: kaempferol 7-rhamnoside, quercetin 7-rhamnoside, kaempferol 3-glucoside, quercetin 3-glucoside, kaempferol 3-gluco-7-rhamnoside, quercetin 3-gluco-7-rhamnoside. Further two compounds are derivatives of kaempferol and quercetin with glucose, rhamnose and probably arabinose. Both compounds are glycosylated at C-3 and C-7. The presence of aglycones-quercetin and kaempferol have been confirmed chromatographically.

9302-1060 Fang, X.P., Anderson, J.E., Smith, D.L., McLaughlin, J.L., Wood, K.V. (Department of Medicinal Chemistry and Pharmacognosy, Purdue University, West Lafayette, Indiana 47907, USA) **Gigantetronenin and gigantrionenin: Novel cytotoxic acetogenins from *Goniothalamus giganteus*.** *Journal of Natural Products*, v. 55(11): p. 1655-1663, 1992 (22 ref, Eng).

Gigantetronenin (C₃₇H₆₇O₇; mp 57-59 degree C) and gigantrionenin (C₃₇H₆₆O₆; mp 55-57 degree C), two new monotetrahydrofuran Annonaceous acetogenins each possessing a double bond along the hydrocarbon chain, have been isolated from bark of *G.giganteus* by the use of brine shrimp lethality for bioactivity-directed fractionation. The structures were elucidated based on spectroscopic and chemical methods. Both the compounds showed selective and potent cytotoxicities to human tumor cells in culture as well as toxicity to brine shrimp. A known cytotoxic acetogenin, annonontacin was also isolated from this plant. The biogenetic pathway of the acetogenins from *G.giganteus* is discussed.

9302-1061 Flament, I. (Research Laboratories, Firmenich, SA, Genf, Schweiz) **From science to art. Volatile constituents of *Rosa speceis*: Structure and odor** (Paper presented at 203 National Meeting of American Chemi-

cal Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 732, 1992 (Eng).

Up to now 400 components have been identified in rose oils and extracts used on perfumery. These products are classified in 9 main classes: hydrocarbons, alcohols, oxides and cyclic ethers, aldehydes, ketones, acids, esters and lactones, phenols and sulfur products. The organoleptic properties of the components are reviewed insisting on some quantitatively minor constituents, but the power and olfactive quality of these contribute significantly to the perfume of the flower. The application of the head space analysis technique makes it possible to characterize the different varieties, to observe the circadian rhythms of the plant and to follow the evolution of the components from the flowering of the buds to the withering of the petals.

9302-1062 Fraga, B.M. (Instituto de productos Naturales y Agrobiologia, La Laguna 38206, Tenerife, Canary Island, Spain) **Natural sesquiterpenoids.** *Natural Product Reports*, v. 9(6): p. 557-580, 1992 (341 ref, Eng).

The paper reports review of literature on natural sesquiterpenoids, published during 1990. The review covers the following sesquiterpenoids viz., farnesenes, bisabolane, himachalane, caryophyllane, senecrassane and clovane. Germacrane, elemene and eudesman are dealt in details.

9302-1063 Fujioka, T., Nagao, T., Okabe, H., Mihashi, K.* (Faculty of Pharmaceutical Sciences, Fukuoka University, Nanakuma 8-19-1, Fukuoka 814-01, Japan) **Studies on the constituents of *Actinostemma lobatum* Maxim. VI. Structures of lobatosides I, J and K, oleanolic acid and gypsogenin glycosides isolated from the seed.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p. 1105-1109, 1992 (5 ref, Eng).

Two new gypsogenin glycosides, named lobatosides I and J, and one oleanolic acid glycoside, lobatoside K, were isolated from the seed of *A.lobatum*, and their structures were elucidated to be as follows based on chemical and spectral evidence. Lobatoside I: 3-O-{O-beta-D-galactopyranosyl-(1 to 2)-beta-D-glucopyranosyluronic acid} gypsogenin 28-{O-beta-D-glucopyranosyl-(1 to 3)-{O-beta-D-xylopyranosyl-(1 to 4)-O-alpha-L-rhamnopyranosyl-(1 to 2)-beta-D-fucopyranosyl} ester. Lobatoside J: 3-O-{O-beta-D-galactopyranosyl-(1 to 2)-beta-D-glucopyranosyluronic acid} gypsogenin 28-{O-beta-D-xylopyranosyl-(1 to 3)-O-beta-D-xylopyranosyl-(1 to 4)-{O-beta-D-glucopyranosyl-(1 to 3)-O-alpha-L-rhamnopyranosyl-(1 to 2)-beta-D-fucopyranosyl} ester. Lobatoside K is an oleanolic acid glycoside. The structure of the sugar moiety is the same as that of lobatoside I.

9302-1064 Grayson, D.H.(University of Chemical Laboratory, Trinity College, Dublin 2, Ireland) **Monoterpenoids.** *Natural Product Reports*, v. 9(6): p. 531-555, 1992 (454 ref, Eng).

The paper reports the review of literature on monoterpenoids, published during the period 1988 and 1989. The main chapters covered in this review include, dimethylocanes, menthanes, cineol derivatives, camphanes and isocamphanes, pinanes, caranes, fenchanes, thujanes, iridanes and cannabinoids.

9302-1065 Gunatilaka, A.A.L., Samaranayake, G., Kingston, D.G.I., Hoffmann, G., Johnson, R.K.(Department of Chemistry, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061-0212, USA) **Bioactive ergost-5-ene-3beta, 7alpha-diol derivatives from *Pseudobersama mossambicensis*.** *Journal of Natural Products*, v. 55(11): p. 1648-1654, 1992 (15 ref, Eng).

Bioactivity-directed fractionation of the methyl ethyl ketone extract of *P.mossambicensis* resulted in the isolation of ergosta-5,24(28)-diene-3beta, 7alpha-diol, 24,28-epoxyergost-5-ene-3beta, 7alpha-diol, and ergost-5-ene-3beta, 7alpha, 24,28-tetraol. All three sterols showed selective activity towards DNA repair-deficient yeast mutants. The sterol also showed cytotoxicity towards wild-type P-388 murine leukemia cells. The isolation, structural elucidation, and biological activities of these sterols are reported.

9302-1066 Gunawardana, G.P., Premachandran, U., Burres, N.S., Whittern, D.N., Henry, R., Spanton, S., McAlpine, J.B.(Pharmaceutical Products Research and Development, Abbott Laboratories, Abbott Park, Illinois 60064, USA) **Isolation of 9-dihydro-13-acetylbaccatin III from *Taxus canadensis*.** *Journal of Natural Products*, v. 55(11): p. 1686-1689, 1992 (17 ref, Eng).

The investigation of *T.canadensis* (Canada yew) needles as a renewable source of taxol and its congeners led to the isolation of a novel taxane derivative, 9-dihydro-13-acetylbaccatin III (C₃₃H₄₂O₁₂; mp 221 degree), which was characterized by spectral analyses and confirmed by single crystal X-ray diffraction studies.

9302-1067 Gupta, S., Ali, M., Alam, M., Sakae, T., Niwa, M. (Faculty of Pharmacy/Science, Jamia Hamdard, Hamdard University, Hamdard Nagar, New Delhi 110062, India) **A new aliphatic hydrocarbon from *Lawsonia inermis* bark.** *Indian Journal of Chemistry*, v. 31(13): p. 705-707, 1992 (7 ref, Eng).

A new aliphatic constituent has been isolated from the stem bark of *L.inermis* and its structure established as 3-methylnonacosan-1-ol by spectral and chemical reactions.

9302-1068 Hamilton-Kemp, T.R., Loughrin, J.H., Andersen, R.A., Rodriguez, J.G.(Department of Horticulture, University of Kentucky, USA) **Volatile compounds from strawberry foliage (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco).** *Parfumerie und Kosmetik*, v. 73(10): p. 730, 1992 (Eng).

Headspace compounds were isolated from detached strawberry leaves using both air and nitrogen as entrainment gases and trapping on the porous polymer Tenax. A total of 20 compounds were identified by comparison with authentic standards. The profile of the volatiles entrained with nitrogen differed considerably from that obtained with air. The former yielded more alcohols and aromatics and the latter yielded greater quantities of terpenes hydrocarbons. The developmental stage of the plant also affected the types and quantities of compound obtained. Considerably more headspace volatiles were isolated from flowering plants in early spring than were obtained during later stages of plant development.

9302-1069 Han, X., Ruegger, H.(Laboratorium fur Anorganische Chemie, Eidgenossische Technische Hochschule, CH-8092 Zurich, Switzerland) **Epimeric (20R,20S)-verazine isolated from *Veratrum maackii*: Two-dimensional NMR studies and total assignment of ¹H and ¹³C-resonances.** *Planta Medica*, v. 58(5): p. 449-453, 1992 (18 ref, Eng).

¹³C-NMR evidence shows that verazine {(25S)-iminocholesta-5, 22(N)-diene-3beta-ol} isolated from the Chinese plant *V.maackii* consists of a 20R/20S mixture of epimers. The determination of the configurations at the chiral epimeric center and of the conformation of the 17beta-side chain is based on the total assignment of the ¹³C-and ¹H-NMR resonances. This goal was achieved by the extensive use of homo-and heteronuclear shift correlation and two-dimensional NOE spectroscopy methods at high magnetic field.

9302-1070 Hano, Y., Aida, M., Nomura, T., Ueda, S. (Faculty of Pharmaceutical Sciences, Kyoto University, Sakyo-ku, Kyoto 606-01, Japan) **A novel way of determining the structure of artonin I, and optically active Diels-Alder type adduct, with the aid of an enzyme system of *Morus alba* cell cultures.** *Journal of the Chemical Society, Chemical Communications*, No. 17: p. 1177-1178, 1992 (9 ref, Eng).

The structure of artonin (isolated from the methanol extract of the root bark of *Artocarpus heterophyllus*) has been established by utilizing the enzyme system of *M.alba* cell cultures which specifically produce the natural Diels-Alder type adducts, as well as spectroscopic evidence. This is the first example of the elucidation of the structure of an organic natural product by application of an enzymatic synthesis of the target substance with the aid of the cell cultures of a related plant.

9302-1071 Harmala, P., Vuorela, H., Hiltunen, R., Nyiredy, S.Z., Sticher, O., Tornquist, K., Caltia, S. (Pharmacognosy Division, Department of Pharmacy, University of Helsinki, SF 00170, Helsinki, Finland) **Strategy for the isolation and identification of coumarins with calcium antagonistic properties from the roots of *Angelica archangelica*.** *Phytochemical Analysis*, v. 3(1): p. 42-48, 1992 (32 ref, Eng).

Fifteen coumarins have been isolated from a chloroform extract of the roots of *A.archangelica* subsp. *archangelica*. The isolation was carried out using medium pressure liquid chromatography, using the normal phase mode and then subsequently using a combination of reversed and normal phase techniques. The isolation was carried out from a chloroform extracts. All the coumarins tested exhibited calcium antagonistic activity. Archangelicin showed activity significantly higher than that of verapamil in the test system.

9302-1072 Hashimoto, F., Nonaka, Gen-ichiro., Nishioka, I. (Faculty of Pharmaceutical Sciences, Kyushu University, 3-1-1, Maidashi, Higashi, Fukuoka 812, Japan) **Tanins and related compounds. CXIV. Structures of novel fermentation products, theogallinin and desgalloyl theaflavin from black tea, and changes of tea leaf polyphenols during fermentation.** *Chemical & Pharmaceutical Bulletin*, v. 40(6): p. 1383-1389, 1992 (13 ref, Eng).

The structure of theogallinin was established on the basis of physico-chemical evidence to be a condensation product linked through pyrogallol-pyrogallol rings in theogallin and (-)-epigallocatechin 3-O-gallate, while theaflavin and desgalloyl theaflavin were characterized as B, B'-linked bisflavonoids formed by an oxidative coupling of isomycitrin and tea catechins {3- and (-)-epigallocatechin}. Furthermore, HPLC analysis of the changes of tea polyphenols during fermentation have revealed that original tea catechin are more rapidly transformed by endogenous phenol oxidase to theasinensins and oolongtheanin than the formerly known black tea pigments, theaflavins.

9302-1073 Hayashi, T., Kawasaki, M., Okamura, K., Tamada, Y., Morita, N., Tezuka, Y., Kikuchi, T., Miwa, Y.,

Taga, T. (Research Institute for Wakanyaku (Oriental Medicines), Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Scoparic acid a, a beta-glucuronidase inhibitor from *Scoparia dulcis*.** *Journal of Natural Products*, v. 55(12): p. 1748-1755, 1992 (8 ref, Eng).

The 70 percent EtOH extract of *S.dulcis* showed inhibitory activity against beta-glucuronidase from bovine liver. Bioassay-directed fractionation of the active extract led to the isolation of three labdane-type diterpene acids, scoparic acid A {6-benzoyl-12-hydroxy-labda-8(17),13-dien-18-oic acid}, scoparic acid B (6-benzoyl-14,15-dinor-13-oxo-8(17)-labden-18-oic acid), and scoparic acid C (6-benzoyl-15-nor-14-oxo-8(17)-labden-18-oic acid), the structures of which were established by spectral means, including X-ray analysis. Scoparic acid A was found to be a potent beta glucuronidase inhibitor.

9302-1074 Hisham, A., Pieters, L., Claeys, M., Dommissie, R., Berghe, D.V., Vlietinck, A. (Department of Chemistry, College of Engineering, Trivandrum-16, Kerala, India) **Guaianolide glucosides from *Elephantopus scaber*.** *Planta Medica*, v. 58(5): p. 474-475, 1992 (8 ref, Eng).

Chromatographic purification of the aqueous fraction, obtained by partition of the initial ethanolic extract of root of *E.scaber* against chloroform/water, yielded three guaianolides. The chloroform fraction yielded stigmasteryl-3-beta-glucopyranoside. This is the first report on the isolation of there compounds from *E.scaber*..

9302-1075 Huang, Y.L., Chen, C.C., Ou, J.C. (National Research Institute of Chinese Medicine, 2 Lane 391, Pei-1 Rd.Sec.2, Hsintein, Taipei Hsien, Taiwan, Republic of China) **Isolintetralin: A new lignan from *Phyllanthus niruri*.** *Planta Medica*, v. 58(5): p. 473-474, 1992 (12 ref, Eng).

The isolation and identification of seven lignans, lintetralin, isolintetralin, hypophyllanthin, nirtetralin, niranthin, phyllanthin and hinokinin from the whole plant of *P.nirui* has been reported. Among these compounds, hinokinin was found for the first time in this plant, and isolintetralin is a new compound and its structure was elucidated by spectroscopic methods.

9302-1076 Humpf, H.U., Schreier, P. (Lehrstuhl für Lebensmittelchemie, Universität Würzburg, Am Hubland, D-8700 Würzburg, Germany) **3-Hydroxy-5,6-epoxy-beta-ionol beta-D-glucopyranoside and 3-hydroxy-7,8-dihydro-beta-ionol beta-D-glucopyranoside: New C13 norisoprenoid glucoconjugates from sloe tree (*Prunus spinosa* L.).** *Journal of Agricul-*

tural and Food Chemistry, v. 40(10): p. 1989-1901, 1992 (17 ref, Eng).

After isolation of a glycosidic extract obtained from sloe tree (*P.spinosa*) followed by hydrolysis with a commercial pectinase enzyme, revealed the occurrence of 41 aglycons. Benzaldehyde, benzyl alcohol, and benzoic acid were found as major constituents. In addition, a number of C13 norisoprenoids, i.e. isomeric oxoactinidols, 3-hydroxy-7,8-dehydro-beta-ionone, 3-oxo-alpha-ionol, 3-hydroxy-7,8-dihydro-beta-ionol, 3-hydroxy-5,6-epoxy-beta-ionol, 3-hydroxy-beta-ionone, and vomifoliol were also present in the milligram per kilogram range. By using prefractionation of the glycosidic leaf extract by rotation locular counter-current chromatography (RLCC), subsequent acetylation and liquid chromatographic purification, two glycoconjugates were isolated in pure form whose structures were elucidated to be beta-D-glucopyranosides of 3-hydroxy-5,6-epoxy-beta-ionol and 3-hydroxy-7,8-dihydro-beta-ionol, respectively.

9302-1077 Humpf, H.U., Wintoch, H., Schreier, P.(Lehrstuhl für Lebensmittelchemie, Universität Würzburg, Am Hubland, D-8700 Würzburg, Germany) **3,4-Dihydroxy-7,8-dihydro-beta-ionol beta-D-glucopyranoside: Natural precursor of isomeric vitispiranes from gooseberry (*Ribes uva crisa* L.) and whitebean (*Sorbus aria*) leaves.** *Journal of Agricultural and Food Chemistry*, v. 40(11): p. 2060-2062, 1992 (10 ref., Eng).

After isolation of glycosidic extracts obtained from *R.uva crisa* and whitebeam *S.aria* leaves by Amberlite XAD-2 adsorption and methanol elution followed by hydrolysis under simultaneous distillation-extraction conditions at pH 2.5, among the aglycons the isomeric vitispiranes were detected as major constituents (20 and 70 mg/kg respectively) by HRGC and HRGC-MS analyses. Using prefractionation of the glycosidic extracts by rotation locular countercurrent chromatography, subsequent acetylation and liquid chromatographic purification, aglycoside was isolated in pure form whose structure was elucidated by LC-MS and NMR analyses to be the beta-D-glucopyranoside of 3,4-dihydroxy-7,8-dihydro-beta-ionol.

9302-1078 Ikeshiro, Y., Mase, I., Tomita, Y.(Department of Pharmacognosy and Phytochemistry, Niigata College of Pharmacy, 5-13-2 Kamishinei-cho, Niigata 950-21, Japan) **Dihydropyranocoumarins from roots of *Peucedanum japonicum*.** *Phytochemistry*, v. 31(12): p. 4303-4306, 1992 (14 ref, Eng).

Two new angular-type dihydropyranocoumarins, peujaponisin and (-)-visnadin, were isolated from the roots of *P.japonicum* and the structures determined as 3'(S)-

seneciolyloxy-4'(S)-isovaleryloxy-3',4'-dihydroseselin and 3'(S)-2-methylbutyryloxy-4'(S)-acetoxy-3',4'-dihydroseselin, respectively, by spectroscopic analysis and chemical reactions.

9302-1079 Ishihara, M., Tsuneya, T., Shiga, M., Kawashima, S., Yamagishi, K., Yoshida, F., Sato, H., Uneyama, K.(Research Laboratories, Shiono Koryo Kaisha, Ltd., Niitaka 5-17-75, Yodogawa-Ku, Osaka 532, Japan) **New pyridine derivatives and basic components in spearmint oil (*Mentha gentilis* f. *cardiaca*) and peppermint oil (*Mentha piperita*).** *Journal of Agricultural and Food Chemistry*, v. 40(9): p. 1647-1655, 1992 (23 ref, Eng).

The basic fraction of spearmint Midwest Scotch oil (spearmint MWS, *M.gentilis* f. *cardiaca*) was analyzed by fused silica capillary gas chromatography and mass spectrometric techniques. A total of 38 nitrogen-containing components including 11 new pyridine derivatives, were identified by comparison of their spectroscopic data with those of synthetic samples. Among them, 2-acetyl-4-isopropenylpyridine is a major component and has a powerful grassy-sweet and minty odor. The typical basic components in spearmint oil were compared with those of peppermint oil. Odor profiles of 15 pyridine derivatives were also described.

9302-1080 Ito, C., Matsui, T., Wo, T.S., Furukawa, H.*(Faculty of Pharmacy, Meijo University, Tempaku, Nagoya 468, Japan) **Isolation of 6,7-demethylenedesoxypodophyllotoxin from *Herandia ovigera*.** *Chemical & Pharmaceutical Bulletin*, v. 40(5): p.1318-1321, 1992 (11 ref, Eng).

6,7-Demethylenedesoxypodophyllotoxin (1) was isolated from the seeds of *H.ovigera* collected in Taiwan, together with several known lignans. This is the first example of the occurrence of 1 in a natural source. The assignments of the ¹³C-nuclear magnetic resonance signals of several podophyllotoxin analogues isolated from this plant were also established by means of two-dimensional H-C correlation spectroscopy and H-C long range COSY techniques.

9302-1081 Jacobsson, U., Muddathir, A.K.(Department of Organic Chemistry, Royal Institute of Technology, S-100 44 Stockholm, Sweden) **Four biologically active sesquiterpenes of the drimane type isolated from *Polygonum glabrum*.** *Phytochemistry*, v. 31(12): p. 4207-4211, 1992 (18 ref, Eng).

Four new diesters of 2,3-dihydroxyisodrimeninol were isolated from the herb *P.glabrum*, which is used as an anthelmintic agent in the traditional medicine of Sudan.

Since the new compounds differed only in one of the acid residues, the structural elucidation was carried out essentially on one of the compounds, using 1D and 2D NMR techniques as well as mass spectroscopy (E1+C1).

9302-1082 Jaroszewski, J.W., Strom-Hansen, T., Hansen, S.H., Thastrup, O., Kofod, H. (Department of Organic Chemistry, Royal Danish School of Pharmacy, Universitetsparken 2, DK 2100 Copenhagen, Denmark) **On the botanical distribution of chiral forms of gossypol.** *Planta Medica*, v. 58(5): p. 454-458, 1992 (55 ref, Eng).

90 Plants species belonging to 33 genera were analysed for the presence of gossypol by reversed-phase HPLC using absorbance detection at 365 nm, and the chirality and optical purity of gossypol were determined whenever the analysis was positive. Only plants belonging to the tribe Gossypieae contained gossypol. No gossypol could be detected in *Abelmoschus esculentus* (okra). *Hibiscus tiliaceus*, *H. sabdariffa* and *Hevea brasiliensis*, earlier claimed to contain this compound. Gossypol-containing plants usually produced dextrorotatory gossypol of varying optical purity; an enantiomeric excess of (-)-gossypol was detected in only one plant *Gossypium barbadense*.

9302-1083 Kadan, G., Gozler, T., Hesse, M. (Organisch-chemisches Institut, Universität Zurich, Winterthurerstrasse 190, CH-8057 Zurich, Switzerland) **(+)-Norchelidonine from *Chelidonium majus*.** *Planta Medica*, v. 58(5): p. 477, 1992 (9 ref, Eng).

A new alkaloid (+)-norchelidonine enantiomer with (-)-norchelidonine was isolated from *C. majus* and its stereostructure was established by specific rotation and CD curve.

9302-1084 Kameoka, H., Mizutani, M., Miyazawa, M., Nakabayashi, Y. (Department of Applied Chemistry, Faculty of Science and Engineering, Kinki University 3-4-1, Kowakae, Higashiosaka-shi, Osaka 577, Japan) **Components of the essential oil of *Saussurea involucreta* (Kar. et. Kir) ex. Maxim.** *Journal of Essential Oil Research*, v. 4(4): p. 325-327, 1992 (6 ref, Eng).

Chemical composition of the essential oil of air dried ground material of *S. involucreta* of Chinese origin was investigated by physico-chemical techniques. Although 45 compounds were identified, the main compounds were palmitic acid (21.29 percent), dihydrodehydrocostus lactone (16.86 percent), n-propyl acetate (10.96 percent), lauric acid (8.48 percent) and dehydrocostus lactone (7.83 percent).

9302-1085 Kashiwada, Y., Fujioka, T., Chang, J.J., Chen, I.S., Mihashi, K., Lee, K.H. (Natural Products, School of Pharmacy, University of North Carolina, Chapel Hill, North

Carolina 27599, USA) **Anti-tumor agents. 136. Cumingianosides A-F, potent antileukemic new triterpene glucosides, and cumindysosides A and B, trisnor- and tetranortriterpene glucosides with a 14, 18-cycloapoeuphane-type skeleton from *Dysoxylum cumingianum*.** *Journal of Organic Chemistry*, v. 57(25): p. 6946-6953, 1992 (12 ref, Eng).

Six cumingianosides A-F (1-6) as well as a trisnor- and a tetranortriterpene glucoside, cumindysosides A(7) and B(8), respectively, with a 14,18-cycloapoeuphane-type skeleton have been isolated from the methanol extract of leaves of *D. cumingianum* as antileukemic principles. The structures were established on the basis of chemical and spectroscopic evidence. Compounds 1 and 3 exhibited potent selective cytotoxicity against MOLT-4 human leukemia cell with ED 50 of less than 0.00625 and greater than 0.0045 micro g/mL, respectively.

9302-1086 Kastner, U., Glasl, S., Jurenitsch, J., Baumann, A., Robien, W., Kubelka, W. (Institut für Pharmakognosie, Universität, A-1090, Wien, Österreich) **3-Oxa-guaianolides from the cultivar *Achillea collina* Proa.** *Scientia Pharmaceutica*, v. 60(3): p. 163, 1992 (4 ref, Eng).

In addition to achillicin, 8 α -angeloxy-10-epi-artabsin and 8 α tigloxy-10-epi-artabsin, common azulene precursors the 3-oxa-analogues of the respective proazulenes 1,2,3 were isolated by means of chromatographical and spectroscopical methods from *A. collina* cultivar.

9302-1087 Kastner, U., Jurenitsch, J., Glasl, S., Baumann, A., Robien, W., Kubelka, W. (Institut für Pharmakognosie, Universität Wien, Wahringer Strasse 25, A-1090, Wien, Austria) **Proazulenes from *Achillea asplenifolia*.** *Phytochemistry*, v. 31(12): p. 4361-4362, 1992 (9 ref, Eng).

From flower heads of *A. asplenifolia* the eight major proazulenes were isolated by repeated column chromatography and HPLC. By 1H NMR and mass spectral studies, especially by measurements of NOE effects, four compounds were shown to be the first 7,8-guaianolide derivatives found in the *A. millefolium* group. They were identified as 4 α -hydroxy-6 α -angeloxy-9 α -acetoxo-5 α H, 7 α H, 8 α H, 11 α H-guai-1(10), 2-dien-7,8-olide and the respective 6 α -tigloxy, 6 α -acetoxo and 4-epi derivatives. One of the proazulenes was identified as 8-deacetyl-4-epi-matricin. The other three proazulenes represent the same 10-epi-artabsin derivatives as recently found in *A. roseo-alba* and *A. collina*, namely 8 α -acetoxo-10-epi-artabsin (achillicin), 8 α -angeloxy-10-epi-artabsin and 8 α -tigloxy-10-epi-artabsin.

9302-1088 Kawai, M., Ogura, T., Makino, B., Matsumoto, A., Yamamura, H., Butsugan, Y., Hayashi, M. (Department of Applied Chemistry, Nagoya Institute of Technology, Gokiso-cho, Showa-ku, Nagoya 466, Japan) **Physalins N and O from *Physalis alkekengi***. *Phytochemistry*, v. 31(12): p. 4299-4302, 1992 (17 ref, Eng).

The structures of physalins N and O, isolated from *P. alkekengi* var *francheti*, were determined as 7 α -hydroxyphysalin B and (25S)-25,27-dihydrophysalin A, respectively.

9302-1089 Kawasaki, Y., Goda, Y., Yoshihira, K. (National Institute of Hygienic Sciences, 18-1, Kamiyoga-1-Chome, Setagaya-ky, Tokyo 158, Japan) **The mutagenic constituents of *Rubia tinctorum***. *Chemical & Pharmaceutical Bulletin*, v. 40(6): p. 1504-1509, 1992 (17 ref, Eng).

Among the 30 constituents isolated from *R. tinctorum*, mollugin, 1-hydroxy-2-methylanthraquinone, 2-ethoxymethyl, anthraquinone, rubiadin, 1,3-dihydroxyanthraquinone, 7-hydroxy-2-methylanthraquinone, lucidin, 1-methoxymethylanthraquinone and lucidin 3-O-primeveroside showed mutagenicity with *Salmonella typhimurium* TA' and/or TA 98. Studies on structure-activity relationship of anthraquinone derivatives suggested that the greatest activity is exhibited by 1,3-dihydroxyanthraquinones possessing methyl or hydroxymethyl group on carbon 2.

9302-1090 Klass, J., Tinto, W.F., Mclean, S., Reynolds, W.F. (Centre for Natural Products Chemistry, University of Guyana, Georgetown, Guyana) **Friedelane triterpenoids from *Peritassa compta*: Complete ¹H and ¹³C assignments by 2D NMR spectroscopy**. *Journal of Natural Products*, v. 55(11): p. 1626-1630, 1992 (8 ref, Eng).

From the stems and bark of *P. compta* three new natural products, friedelane-3, 15-dione, 15 α -hydroxyfriedelin, and 15 α -hydroxyfriedelane-1,3-dione, along with friedelin and friedelane-1, 3-dione were isolated. Complete ¹H and ¹³C-assignments for all compounds were achieved by 2D nmr spectroscopy.

9302-1091 Klimek, B., Lavaud, C., Massiot, G. (Department of Pharmacognosy, Institute of Drug Technology and Chemistry, Medical University of Lodz, Muszynski str. 1 90-151 Lodz, Poland) **Saponins from *Verbascum nigrum***. *Phytochemistry*, v. 31(12): 4368-4370, 1992 (17 ref, Eng).

Two triterpene saponins have been isolated from the inflorescences of *V. nigrum* and their structures determined by chemical and spectral methods.

9302-1092 Konoshima, T., Kokumai, M., Kozuka, M., Tokuda, H., Nishino, H., Iwashima, A. (Kyoto Pharmaceutical University, Misasagi, Yamashina-ku, Kyoto 607, Japan) **Anti-tumor-promoting activities of afromosin and soyasaponin I isolated from *Wistaria brachybotrys***. *Journal of Natural Products*, v. 55(12): p. 1776-1778, 1992 (13 ref, Eng).

Afromosin (1) and soyasaponin (2) isolated from *W. brachybotrys* exhibited remarkable inhibitory effects on mouse skin tumor promotion, and afromosin also exhibited a significant inhibitory effect on pulmonary tumor promotion. The combined effects of these compounds on the two stage skin carcinogenesis were also examined, and it was concluded that the combination of 1 with 2 enhanced the inhibitory effect.

9302-1093 Kostova, I. (Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia 1113, Bulgaria) **Hydroxycoumarins from *Fraxinus ornus* bark**. *Planta Medica*, v. 58(5): p. 484, 1992 (9 ref, Eng).

The coumarins esculetin, fraxidin, scoparone, isoscopoletin, scopoletin, fraxinol, and fraxidin were isolated from the bark of *F. ornus*. Identification of all compounds was achieved by UV, IR, ¹H-NMR, and mass spectra and direct comparison with authentic samples available in the laboratory. NOE experiments confirmed the structures of fraxidin and fraxinol.

9302-1094 Kuo, M.C., Ho, C.T. (Department of Food Science, Cook College, New Jersey Agricultural Experiment Station, Rutgers, The State University of New Jersey, New Brunswick, New Jersey 08903, USA) **Volatile constituents of the solvent extracts of Welsh onions (*Allium fistulosum* L. variety Maichuon) and scallions (*A. fistulosum* L. variety Caespitosum)**. *Journal of Agricultural and Food Chemistry*, v. 40(10): p. 1906-1910, 1992 (16 ref, Eng).

Volatile components were isolated from Welsh onions and scallions by solvent extraction at ambient temperatures and analyzed by GC and GC-MS. There were 67 volatile components identified, including 12 novel polysulfides. Methyl methanethiosulfinate and 10 dialk(en)yl thiosulfonates were among those volatiles in Welsh onion and scallion extracts.

9302-1095 Lajis, N.H., Smadi, Z., Ismail, N.* (School of Pharmaceutical Sciences, University Sains Malaysia 11000 Minden, Pulau Pinang Malaysia) **Dicentrine: The major alkaloid of *Cyclea laxiflora* Miers.** *Pertanika*, v. 14(3): p. 353-354, 1991 (8 ref, Eng).

The major alkaloid of *C. laxiflora* was isolated from the roots and identified as dicentrine from its spectral and physical data.

9302-1096 Lawrence, B.M. (RJR Tobacco Company, Bowman Gray Technical Center, PO Box 2959, Winston-Salem, NC 27102, USA) **Progress in essential oils.** *Perfumer & Flavorist*, v. 17(6): p. 51-60, 1992 (34 ref, Eng).

Recent developments made in the chemistry of cardamom oil (*Elettaria cardamom*), guaiacwood oil (*Bulnesia sarmienti*), santolina oil (*Santolina chamaecyparissus*), lemongrass oil (*Cymbopogon* spp), rosemary oil (*Rosmarinus officinalis*), and geranium oil (*Pelargonium* spp) have been reviewed.

9302-1097 Leclercq, P.A., Dung, N.X., Lo, V.N., Toanh, N.V. (Laboratory of Instrumental Analysis, Department of Chemical Engineering, Eindhoven University of Technology, PO Box 513, 5600 MB, Eindhoven, The Netherlands) **Composition of the essential oil of *Eryngium foetidum* L. from Vietnam.** *Journal of Essential Oil Research*, v. 4(4): p. 423-424, 1992 (4 ref, Eng).

Essential oil of the aerial parts of *E. foetidum* yielded on GC/MS nineteen compounds of which major ones are (E)-2-dodecenal (45.5 percent) and 2-dodecenoic acid (15.5 percent). The other constituents of this oil are mainly aldehydes and acids.

9302-1098 Lee, S.C., Ahn, B.T., Park, W.Y., Lee, S.H., Ro, J.S., Lee, K.S., Ryu, E.K. (Korea Research Institute of Chemical Technology, Daejeon 305-606, Korea) **Pharmacognostical study on the *Euphorbia ebracteolata* (I)-On the flavonoidal constituents.** *Korean Journal of Pharmacognosy*, v. 23(3): p. 126-131, 1992 (8 ref, Eng, Kor).

Four flavonoids were isolated from the aerial parts of *E. ebracteolata*. On the basis of chemical and spectroscopic evidence, the structures of these compounds were established as quercetin-3-O-beta-D-glucoside (isoquercitrin)(I), quercetin-3-O-rutinoside (rutin)(II), kaempferol-3-O-rutinoside (III) and quercetin-3-O-(2"-O-galloyl)-beta-D-glucoside (IV) which was the main flavonoidal components in this plant. The isolation of flavonoids from *E. ebracteolata* is the first example.

9302-1099 Lee-Juian Lin, Topcu, G., Lotter, H., Ruangrunsi, N., Wagner, H., Pezzuto, J.M., Cordell, G.A.* (Program for Collaborative Research in the Pharmaceutical Sciences, Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago IL 60612, USA) **Wrightiadione from**

***Wrightia tomentosa*.** *Phytochemistry*, v. 31(12): p. 4333-4335, 1992 (13 ref, Eng).

A novel isoflavone wrightiadione (yield 0.00006 percent, mp 228-30 degree C) was isolated from the bark of *W. tomentosa*. Determination of the carbon framework was based on the interpretation of NMR and mass spectral data, and the structure was confirmed by X-ray analysis. This compound displays cytotoxic activity against the murine P 388 lymphocytic leukemia cell line (ED50, 1.1 micrg/ml).

9302-1100 Lee-Juian Lin, Ruangrunsi, N., Cordell, G.A.*, Hui-Ling Shieh, Min You, Pezzuto, J.M. (Program for Collaborative Research in the Pharmaceutical Sciences, Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, IL 60612, USA) **6-Deoxyclitoriacetal from *Clitoria macrophylla*.** *Phytochemistry*, v. 31(12): p. 4329-4331, 1992 (6 ref, Eng).

A new rotenoid, 6-deoxyclitoriacetal (yield 0.063 percent, mp 130-31 degree C) was isolated from the roots of *C. macrophylla* and its structural assignment was established unambiguously by a series of HETCOR, COLOC and NOE difference experiments. In vitro tests showed that this compound possessed strong cytotoxic activity against cultured P-388 lymphocytic leukemia cells, but was not active with cultured KB cells. However, marginal activity was observed with vinblastine-resistant KB-V1 cells, and this was enhanced by the addition of vinblastine. This rotenoid may, therefore, interact with P-glycoprotein.

9302-1101 Ley, S.V., Lovell, H., Williams, D.J. (Department of Chemistry, Imperial College of Science, Technology and Medicine, London SW7 2AY, UK) **Chemistry of insect antifeedant from *Azadirachta indica*, Part 14: Absolute configuration of azadirachtin.** *Journal of the Chemical Society, Chemical Communications*, No. 18: p. 1304-1306, 1992 (11 ref, Eng).

The absolute configuration of azadirachtin has been determined by high field NMR application of the Mosher method and confirmed by X-ray crystallographic analysis.

9302-1102 Li, W.S. (Department of Environmental Protection, National Pingtung Polytechnic Institute, Pingtung, Taiwan, Republic of China) **Sesquiterpene lactones from the roots of *Neolitsea acutotrinervia*.** *Journal of Natural Products*, v. 55(11): p. 1614-1619, 1992 (16 ref, Eng).

Ethyl alcohol extract of *N. acutotrinervia* yielded four known furanogermacranolides, linderane, (+)-linderadine, zeylanane, and zeylanine, one known germacranediolide, pseudoneoliacine; and four new germacranediolides, acutotrine, zeylaninone, acutotrinone, and acutotrinol.

Structures of the compounds were determined on the basis of spectroscopic properties.

9302-1103 Liang Xiao Tian (Institute of Materia Medica, Nan-Wei Road, Beijing 100 050, China) **Stereochemistry of some Chinese herbal isolates.** *Youji Huaxue*, v. 12 (Supplement): p. 28-33, 1992 (8 ref, Eng).

The stereochemistry of two active principles viz. quinghausu and lignoids (from *Schisandrae*) have been reviewed.

9302-1104 Lin, K. (Institute of Natural Resources, Heilongjiang Academy of Sciences, 25 Haping Road, Harbin 150040, China) **Study of the utilization of medicinal plant *Convallaria keiskei* Miq.** *International Seminar-Traditional Medicine, Calcutta 7-9, November*, p. 55, 1992 (Eng).

Cardiovascular diseases are main endangering ones to public health. Convallatoxin from medicinal plant *C.keiskei* has been isolated. (Abstr. No. 9.13).

9302-1105 Lin, Y.L., Ou, J.C., Chen, C.F., Kuo, Y.H. (National Research Institute of Chinese Medicine, Taipei Hsien 23177, Taiwan ROC) **Flavonoids from the roots of *Scutellaria luzonica* rolfe.** *Journal of the Chinese Chemical Society*, v. 38(6): p. 619-623, 1991 (20 ref, Eng).

Thirteen flavones, two flavanones, a chalcone and a flavone glycoside have been isolated from the roots of *S.luzonica* and identified. NSL, New Delhi.

9302-1106 Liu, H.M., Kiuchi, F., Tsuda, Y. (Faculty of Pharmaceutical Sciences, Kanazawa University, 13-1 Takara-machi, Kanazawa 920, Japan) **Isolation and structure elucidation of gymnemic acids, antisweet principles of *G.sylvestre*.** *Chemical & Pharmaceutical Bulletin*, v. 40(6): p. 1366-1375, 1992 (27 ref, Eng).

The structure of gymnemagenin, the sapogenin of *Gymnema sylvestre* established by X-ray analysis of the 3 β , 23; 21 β , 22 α -di-O-isopropylidene derivative. On the basis of this the structure of deacylgymnemic acid was elucidated as the 3-O- β -glucuronide from the ¹³C-NMR spectra. Five antisweet principles viz; gymnemic acid III, IV, V, VIII, IX were isolated from the water extract of leaves of *G.sylvestre*. Of these three were known and two were new compounds. The structures of new compounds were elucidated.

9302-1107 Lontsi, D., Sondengam, B.L., Martin, M.T., Bodo, B. (Department of Organic Chemistry, Faculty of Science, University of Yaounde, BP 812, Yaounde, Cameroon) **Musangic acid, a triterpenoid constituent**

of *Musanga cecropioides*. *Phytochemistry*, v. 31(12): p. 4285-4288, 1992 (11 ref, Eng).

Two pentacyclic triterpenes were isolated from the methylated rootwood extract of *M.cecropioides* and their structures elucidated by 2D COSY spectroscopic methods. One was a new triterpene, methyl musangicate (methyl 2 α ,3 α ,19 α ,22 α -tetrahydroxyurs-12-en-28-oate), the other was methyl euscaphate (methyl 2 α ,3 α ,19 α -trihydroxyurs-12-en-28-oate).

9302-1108 Lutomski, J., Luan, T.C. (Institute of Medicinal Plants, Libelta 27, 61-707 Poznan, Poland) **Polyacetylenes in the Araliaceae family part I. The isolation and identification of acetylenic compounds from rhizomes and roots of Vietnamese ginseng (*Panax vietnamensis* Ha et Grushv.).** *Herba Polonica*, v. 37(3-4): p. 113-123, 1991 (19 ref, Eng, Pol).

Seven polyacetylene compounds were isolated from Vietnamese ginseng for the first time. Two main compounds were identified as falcarinol and heptadeca-1,8(E)-diene-4,6-diyne-3-10-diol, two new ones as 10-acetoxy-heptadeca-8(E)-ene-4,6-diyne-3-ol and heptadeca-1,8(E), 10(E)-triene-4, 6-diyne-3,12-diol, three others were suggested to be isomers and derivatives of heptadec-1, 8(E)-diene-4,6-diyne-3,10-diol.

9302-1109 Lyckander, I.M., Malterud, K.E. (Institute of Pharmacy, Section Pharmacognosy, The University of Oslo, P.O.Box 1068 Blindern, N-0316 Oslo 3, Norway) **Lipophilic flavonoids from *Orthosiphon spicatus* as inhibitors of 15-lipoxygenase.** *Acta Pharmaceutica Nordica*, v. 4(3): p. 159-166, 1992 (55 ref, Eng).

Sinensetin and tetramethylscutellarein are the strongest inhibitors, with IC₅₀ values of 114 \pm 3 μ M towards oxidation of linoleic acid. Quercetin, a well-known flavonoid inhibitor of lipoxygenases which was tested for comparison, had an IC₅₀ value of 98(\pm)3 μ M in this system. Other *Orthosiphon* flavonoids closely to sinensetin and tetramethylscutellarein were weaker inhibitors or inactive. HPLC analysis of flavonoids from *O.spicatus* gave concentrations of sinensetin and tetramethylscutellarein of 0.19 percent and 0.11 percent, respectively, in dried plant tissue, while concentrations of the other flavonoids were lower. An ethyl acetate extract of the plant inhibited 15-lipoxygenase catalyzed oxidation of linoleic acid with an IC₅₀ value of 0.018 \pm 0.002 percent(w/v). A synergistic effect of the flavonoids was observed, but considerably less than was needed to account for the activity of the extract. Thus, the existence of other, as yet unidentified, 15-lipoxygenase inhibitors in *O.spicatus* cannot be excluded.

9302-1110 Mahato, S.B., Sahu, N.P., Sarkar, S.K., Podder, G. (Indian Institute of Chemical Biology, 4, Raja S.C. Mullick Road, Jadavpur, Calcutta 700032, India) **New hypoglycemic and antihyperglycemic principles from *Gymnema sylvestre*.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November*, p. 128, 1992 (Eng).

The hot water extract of the dried leaves of *G. sylvestre* on chromatography furnished four new triterpenoid saponins, designated gymnemasins A-D, besides the already reported gymnemic acids I-IV. Both the prosapogenins on mild acid hydrolysis furnished a sapogenin designated gymnemanol (C₃₀H₅₀O₅) which was characterized as olean-12-ene-3 β , 16 β , 22 α , 23,28-pentaol. Gymnemasins A-D were defined as 3-O-{ β -D-glucopyranosyl (1-3)- β -D-glucuronopyranosyl}-22-O-tigloylgymnemanol, 3-O-{ β -D-glucopyranosyl (1-3)- β -D-glucuronopyranosyl}gymnemanol, 3-O- β -D-glycuronopyranosyl-22-O-tigloylgymnemanol and 3-O- β -D-glucuronopyranosyl-gymnemanol respectively by spectroscopic methods and some strategic chemical transformations. The hypoglycemic and antihyperglycemic activities of the saponins were discussed (Abstr. No.8.09).

9302-1111 Mallavarapu, G.R., Kulkarni, R.N., Ramesh, S. (Central Institute of Medicinal and Aromatic Plants, Regional Centre Bangalore 560 065, Karnataka, India) **Composition of the essential oil of *Cymbopogon coloratus*.** *Planta Medica*, v. 58(5): p. 479-480, 1992 (6 ref, Eng).

The essential oil of *C. coloratus* obtained by hydrodistillation of the fresh grass afforded over 60 constituents of which 33 were identified. The main constituents of the oil are myrcene (1.76 percent), limonene (5.81 percent), trans-beta-ocimene (3.46 percent), linalool (1.69 percent), neral (2.27 percent), geranial (1.32 percent), geraniol (69.11 percent), geranyl acetate (3.80 percent), and elemol (2.04 percent). The presence of large amounts of geraniol and geranyl acetate in the oil is significant and the oil can therefore be considered as a good source of geraniol.

9302-1112 Mandal, B., Maity, C.R. (Department of Chemistry, B.N. Mahavidyalaya, Itachuna 712147, Hooghly, WB, India) **Physicochemical and nutritional characteristics of *Michelia champaca* seed oil.** *Acta Alimentaria*, v. 21(2): p. 131-135, 1992 (9 ref, Eng).

M. champaca seeds contain 10.4 percent resin and 30.9 percent dark yellow coloured semi-solid fat. The alcohol-alkali refining and bleaching with fullers earth and carbon reduced the high acid value, high unsaponifiable matter and dark colour of the crude seed oil. The fatty acid composition (wt percent) of the refined seed oil was: pal-

mitic 24.2, stearic 5.8, oleic 66.1 and linoleic 3.9. Nutritional quality of the refined seed oil was evaluated by feeding the seed oil and groundnut oil as control to rats at 10 percent level for 4 weeks. The growth performance, digestibility, feed efficiency ratio, serum lipids and histopathological findings were satisfactory for the refined seed oil.

9302-1113 Manns, D., Hartmann, R. (Pharmazeutisches Institut der Universität Bonn, Kreuzbergweg 26, D(W)-5300 Bonn1, FRG) **The constitution and configuration of isocaryophyllen-13-al.** *Planta Medica*, v. 58(5): p. 442-444, 1992 (7 ref, Eng).

The aerial parts of *Cunila spicata* afforded a sesquiterpene-aldehyde named isocaryophyllen-13-al (β -betulenal). The constitution and configuration of this compound were established by high field NMR-techniques for the first time.

9302-1114 Masuda, T., Muraya, Y., Nakatani, N. (Laboratory of Food Chemistry, Faculty of Science of Living, Osaka City University, Sumiyoshi, Osaka, 558, Japan) **Coumarin constituents of the juice oil from *Citrus hassaku* and their spasmolytic activity.** *Bioscience, Biotechnology and Biochemistry*, v. 56(8): p. 1257-1260, 1992 (7 ref, Eng).

Ten-7-hydroxycoumarin derivatives, containing compounds 7-[(6R)-6-formoyloxy-7-hydroxy-3,7-dimethyl-(2E)-2-octenyloxy]-coumarin and 7-[(6R)-6-hydroxy-7-methoxy-3,7-dimethyl-(2E)-2-octenyloxy] coumarin were isolated from the juice oil of *C. hassaku* along with auraptin, (+)-epoxyauraptin and (+) marmin. Their structures were determined by spectroscopic and physicochemical means. The spasmolytic activity of the isolated compounds was measured by the Magnus method, using guinea pig ileums. Three compounds out of ten hydroxycoumarin derivatives, showed higher spasmolytic activity than that of auraptin. The structure activity relationship is discussed.

9302-1115 Matsubara, Y., Yusa, T., Sawabe, A., Iizuka, Y., Takekuma, S.I., Yoshida, Y. (Department of Applied Chemistry, Faculty of Science and Engineering, Kinki University, Higashi Osaka 577, Japan) **Structures of new cyclic peptides in young unshiu (*Citrus unshiu* (Marcov.), orange (*Citrus sinensis*) Osbeck and Amanatsu (*Citrus natsudaoidai*) peelings.** *Agricultural and Biological Chemistry*, v. 55(12): p. 2923-2929, 1991 (8 ref, Eng).

Four cyclic peptides viz., citrussin I, II, III and IV, were isolated from young unshiu (unripe fruit), orange and amanatsu peelings, and their structures were established on the basis of FAB-MS and 2D-NMR spectroscopic data and

by chemical evidence. They were each found to consist of seven or eight amino acids.

9302-1116 Mazza, G., Biliaderis, C.G., Przybylski, R., Oomah, B.D. (Food Research Laboratory, Research Station, Agriculture Canada, Morden, Manitoba, Canada, R0G 1J0, Canada) **Compositional and morphological characteristics of cow cockle (*Saponaria vaccaria*) seed, a potential alternative crop.** *Journal of Agricultural and Food Chemistry*, v. 40(9): p. 1520-1523, 1992 (22 ref, Eng).

Seeds from cow cockle, an annual weed commonly found in grain fields of North America, were analysed for their morphological and physical characteristics, proximate chemical composition, mineral constituents, and amino acid, lipid, and fatty acid composition. The results revealed that the composition of whole, mature seed of cow cockle is similar to that of most cereal grains. Dehulled seeds, however, contain over 77 percent starch with very small (0.5-1.0 micro m) granules of uniform size, while the hulls contain about 1 percent saponins; these seed constituents may find unique applications in the food/feed and cosmetics industries.

9302-1117 Mericli, A.H., Ergezen, K., Cubukcu, B. (University of Istanbul, Faculty of Pharmacy, Department of Pharmacognosy, 34452 University, Istanbul, Turkey) **Constituents of *Helichrysum stoechas* subsp. *barrelieri*.** *Fitoterapia*, v. 63(5): p. 475, 1992 (2 ref, Eng):

The following constituents were identified from the capitula and leafy stems of the plant, viz., helipyron, luteolin, quercetin, quercetagenin, helichrysin B, luteolin-7-glucoside, quercetin-3-glucoside, quercetin-7-glucoside, quercetagenin-7-glucoside, kaempferol and kaempferol-7-glucoside.

9302-1118 Misra, L.N., Ahmad, A. (Department of Phytochemistry, Central Institute of Medicinal and Aromatic Plants, Lucknow 226016, UP, India) **An oxygenated tetrahydrobergamotene from the essential oil of *Dracocephalum nutans*.** *Planta Medica*, v. 58(5): p. 478-479, 1992 (10 ref, Eng).

An uncommon bergamotane derivative was isolated from the essential oil of *D. nutans* and the structure 3-beta-hydroxy-2-oxo-1,2,12,13-tetrahydro-bergamotene was assigned on the basis of spectral data (IR, H-NMR, and MS).

9302-1119 Mizrahi, I., Juarez, Y.M.A. (Doctor en Quimica y, Laboratorio de Plantas Aromaticas, Instituto de Recursos Biologicos, Provincia de Buenos Aires, Argentina) **Essential oil of *Mentha spicata* and *M. cardiaca*. Infrared analysis to measure content of carvone.** *Essenze Derivati Agrumari*, v. 59(4): p. 336-344, 1991 (19 ref, Fre, Eng).

The main differences between the essential oils of *M. spicata* and *M. cardiaca* by spectroscopy were established. American spearmint contained esters, dihydrocarvone, and cineole and a less of limonene and menthone as compared to Scotch spearmint. The percentage of carvone was the same in both the spearmints. An IR methodology to evaluate the carvone by means of absorbance at 1110 cm⁻¹ has been described.

9302-1120 Mookherjee, B.D., Trenkle, R.W., Wilson, R.A., Zampino, M.J. (International Flavours & Fragrances Inc., 1515 Highway 36, Union Beach, New Jersey 07735, USA) **Aroma chemistry of live flowers, fruits, herbs and spices of medicinal value.** *International Seminar-Traditional Medicine*, 7-9 November, 1992, p. 44, 1992 (Eng).

Many flowers, fruits, herbs and spices are known to have therapeutic value, but their aroma chemistry is not well known particularly when they are in the living state. The present paper will describe the aroma chemistry of living vs. picked and processed flowers, fruits, herbs and spices with medicinal value. *Abstr. No. PL I*.

9302-1121 Muhammad, I., El-Ferally, F.S., Mossa, J.S., Ramadan, A.F. (Medicinal, Aromatic and Poisonous Plant Research Center (MAPPRC), College of Pharmacy, King Saud University, P.O.Box 2457, Riyadh 11451, Saudi Arabia) **Terpenoids from *Pulicaria glutinosa*.** *Phytochemistry*, v. 31(12): p. 4245-4248, 1992 (9 ref, Eng).

The aerial parts of *P. glutinosa* yielded the diterpene, strictic acid, and its two new derivatives, pulic acid and 15-deoxypulic acid. Their structural assignments were largely based on 1D and 2D NMR spectroscopic data. A fourth compound, the new bisabolene sesquiterpene puliglutoic acid, was also obtained, and its structure determined from its spectroscopic data and by chemical derivatization.

9302-1122 Munoz, O., De La Torre, M. (Departamento de Quimica, Facultad de Ciencias, Casilla 653, Santiago, Chile) **The constituents of *Lepidophyllum cupressiforme*.** *Fitoterapia*, v. 63(5): p. 470-471, 1992 (3 ref, Eng).

Isolation of uvanol, oleanolic acid, ursolic acid, erythrodil, dupeol, umbelliferone, beta-amyrin and friedelinol from the fresh aerial parts of *L. cupressiforme* is reported.

9302-1123 Nakatani, N., Nagashiwa, M. (Department of Food and Nutrition, Faculty of Science of Living, Osaka City University, Sumiyoshi-ku, Osaka 558, Japan) **Pungent alkamides from *Spilanthes acmella* L. var. *Oleracea* Clarke.** *Bioscience, Biotechnology and Biochemistry*, v. 56(5): p. 759-762, 1992 (25 ref, Eng).

A main pungent amide, spilanthol and three alkamides, (2E)-N-(2-methyl butyl)-2-undecene 8,10-diynamide, (2E, 7Z)-N-isobutyl-2,7-tridecadiene-10,12-diynamide, and (7Z)-N-isobutyl-7-tridecane 10,12-diynamide were isolated from the flower heads of *S.acmella* var. *oleracea*. Their structures were established by spectroscopic methods. Chemotaxonomic aspects are also given.

9302-1124 Nicoletti, M., Tomassini, L., Foddai, S. (Dipartimento di Biologia Vegetale, Universita La Sapienza, Roma, Italy) **A new hemiterpene glucoside from *Ornithogalum montanum*.** *Planta Medica*, v. 58(5): p. 472, 1992 (5 ref, Eng).

The CC separation, on SiO₂ in n-BuOH saturated with H₂O, of the ethanolic extract of the whole plant of *O.montanum* led to the isolation of flavonoid glycosides and of a terpene glucoside, 1. On the basis of chemical confirmations obtained by selective decoupling experiments and 1H-1H COSY spectra, the structure of the 1-O-beta-D-glucopyranoside of 1,4-dihydroxy-2-methylbut-2-ene was assigned to compound 1.

9302-1125 Ninov, S., Ionkova, I., Kolev, D. (Institute of Pharmacology and Pharmacy, Medical Academy, Dunav Street 2, Sofia 1000, Bulgaria) **Constituents of *Althaea officinalis* var. "Russalka" roots.** *Fitoterapia*, v. 63(5): p. 474, 1992 (2 ref, Eng).

Isolation of scopoletin, quercetin, kaempferol, chlorogenic, caffeic and p-coumaric acids from the dried roots of *A.officinalis* var. *russalka* is reported.

9302-1126 Norr, H., Wagner, H.* (Institute of Pharmaceutical Biology, University of Munich, Karlstr. 29, D(W)-8000 Munchen 2, Federal Republic of Germany) **New constituents from *Ocimum sanctum*.** *Planta medica*, v. 58(6): p. 547, 1992 (8 ref, Eng).

The water phase of ethanolic extract of *O.sanctum* has been found to contain vicenin-2 (apigenin 6,8-C-diglucoside), identified by UV spectroscopy and HPLC-cochromatography with authentic substance. The n-BuOH phase afforded rosmarinic acid, galuteolin (luteolin 5-O-glucoside), and cirsilineol (5,4'-dihydroxy-6,7,3'-trimethoxyflavone). Furthermore, gallic acid, gallic acid methyl ester, gallic acid ethyl ester, protocatechuic acid, vanillic acid, 4-hydroxybenzoic acid, vanillin, 4-hydroxybenzaldehyde, caffeic acid, and chlorogenic acid were identified by UV spectroscopy and HPLC-cochromatography by comparison with authentic samples. Two phenylpropane glucosides, 4-allyl-1-O-beta-D-glucopyranosyl-2-hydroxybenzene and 4-allyl-1-O-beta-D-glucopyranosyl-2-methoxybenzene were also detected identified.

9302-1127 Ogbobe, O. (Department of Polymer and Textile Technology, School of Engineering and Engineering Technology, Federal University of Technology, Owerri, Imo State Nigeria) **Physico-chemical composition and characterisation of the seed and seed oil of *Sclerocarya birrea*.** *Plant Foods for Human Nutrition*, v. 42(3): p. 201-206, 1992 (12 ref, Eng).

The physicochemical composition of *S.birrea* was assessed by standard methods and was found to contain 11.0 percent crude oil, 17.2 percent carbohydrate, 36.70 percent crude protein 3.4 percent fibre and 0.9 percent crude saponins. The fatty acid distribution in the seed oil was obtained by fractionating the volatized fatty acid by GC-MS. The oil is made up to nine fatty acids of which palmitic, stearic and arachidonic acids are the most dominant.

9302-1128 Omar, S., Chang Leng Chee, Ahmad, F., Jiu Xiang Ni, Jaber, H., Jinasheng Huang, Nakatsu, T. (Department of Chemistry, Universiti Kebangsaan Malaysia Sabah Campus, L.B.No.62,88996 Kota Kinabalu, Sabah, Malaysia) **Phenanthrene lactams from *Goniothalamus velutinus*.** *Phytochemistry*, v. 31(12): p. 4395-4397, 1992 (8 ref, Eng).

A new phenanthrene lactam, designaed as velutinam (10-amino-8-hydroxy-3,4-dimethoxyphenanthrene-1-carboxylic acid lactam), was isolated from an extract of the bark of *G.velutinus* along with aristolactam-BII (10-amino-3,4-dimethoxyphenanthrene-1-carboxylic acid lactam). Their structures were established from spectral data.

9302-1129 Ono, M., Fujimoto, K., Kawata, M., Fukunaga, T., Kawasaki, T., Miyahara, K. (Faculty of Pharmaceutical Sciences, Setsunan University, 45-1, Nagaotoge-cho, Hirakata, Osaka 573-01, Japan) **Resin glycosides. XIII. Operculins VI, XI, XII, XIII, XIV and XV, the ether soluble resin glycosides (Jalapin) from *Rhizoma Jalapae Braziliensis* (roots of *Ipomoea operculata*).** *Chemical & Pharmaceutical Bulletin*, v. 40(6): p. 1400-1403, 1992 (8 ref, Eng).

Six new ether-soluble resin glycosides (jalapin), operculins VI, XI, XII, XIV and XV, isolated from roots of *I.operculata* have been characterized on the basis of chemical and spectral data.

9302-1130 Ori, K., Mimaki, Y., Sashida, Y.* , Nikaido, T., Ohmoto, T. (Tokyo Colluege of Pharmacy, 1432-1, Horinouchi, Hachioji, Tokyo 192-03, Japan) **Steroidal alkaloids from the bulbs of *Fritillaria persica*.** *Phytochemistry*, v. 31(12): p. 4337-4341, 1992 (13 ref, Eng).

The methanolic extract of the fresh bulbs of *F.persica* has yielded five new steroidal alkaloids. Their structures

have been shown by spectral analysis and chemical evidence to be (25R)-22,26-epimino-3 beta-hydroxy-5alpha-cholest-22(N)-en-6-one 3-O-beta-D-glucopyranoside; (25R)-23,26-epimino-3beta-hydroxy-5alpha-cholest-23(N)-ene-6,22-dione and its 3-O-glucoside, and their C-20 epimers. The inhibitory activity of the alkaloids on cyclic AMP phosphodiesterase was examined.

9302-1131 Ozaki, Y., Ayano, S., Miyake, M., Maeda, H., Ifuku, Y., Hasegawa, S. (Wakayama AGRI-BIO Research Centre, 396-1, Tsukatsuki, Momoyama-cho Naga-gun, Japan) **Limonoid glucosides in juices of Satsuma Mandrain Citrus unshiu Marc..** *Bioscience, Biotechnology, and Biochemistry*, v. 56(5): p. 836-837, 1992 (12 ref, Eng).

HPLC analysis of *C.unshiu* juice showed the presence of 17-beta-glucopyranosides, other limonoids identified include limonin, nomilin, nomilinic acid, and obacunone.

9302-1132 Passreiter, C.M. (Institut für Pharmazeutische Biologie, Heinrich-Heine Universität Düsseldorf, Universitätsstrasse 1, 4000 Düsseldorf, F.R.G.) **Co-occurrence of 2-pyrrolidineacetic acid with the pyrrolizidines tussilaginic acid and isotussilaginic acid and their 1-epimers in Arnica species and Tussilago farfara.** *Phytochemistry*, v. 31(12): p. 4135-4137, 1992 (11 ref, Eng).

Flowerheads of *A.montana*, *A.chamissonis* ssp. *foliosa*, *A.amplexicaulis* and *A.sachalinensis* and leaves of *T.farfara* contained in addition to the pyrrolizidine alkaloids, tussilaginic acid and isotussilaginic acid, 2-pyrrolidineacetic acid and the C-1 epimers of the two pyrrolizidine acids. Biosynthetic aspects are discussed on the basis of this co-occurrence. The pyrrolizidines tussilagine and isotussilagine, formerly reported for Asteraceae species, are artefacts caused by Soxhlet extraction with methanol.

9302-1133 Passreiter, C.M., Willuhn, G., Roder, E. (Institut für Pharmazeutische Biologie der Heinrich-Heine-Universität Düsseldorf, Universitätsstrasse, 1, D(W)-4000 Düsseldorf, Federal Republic of Germany) **Tussilagine and isotussilagine: Two pyrrolizidine alkaloids in the genus Arnica.** *Planta Medica*, v. 58(6): p. 556-557, 1992 (11 ref, Eng).

In flowerheads of *A.montana*, *A.chamissionis* ssp. *foliosa*, *A.amplexicaulis*, and *A.sachalinensis*, traces of the non-toxic pyrrolizidine alkaloids tussilagine and isotussilagine were detected. Their identity was unambiguously confirmed by direct comparison (TLC, GC, GC/MS) with the authentic samples.

9302-1134 Pei Tan, Cui-Ying Hou, Yong-Long Liu, Lee-Juan Lin, Cordell, G.A.* (Program for Collaborative Research in the Pharmaceutical Sciences, Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, IL 60612, USA) **3-O-Demethylswertipunicoside from Swertia punicea.** *Phytochemistry*, v. 31(12): p. 4313-4315, 1992 (8 ref, Eng).

A novel bisxanthone C-glycoside, 3-O-demethylswertipunicoside, structurally related to swertipunicoside, was isolated from whole plants of *S.punicea*. Determination of its structure was based on the interpretation of the spectroscopic data, particularly selective INEPT NMR spectra, and characterized as 1,3,5,8-tetrahydroxy-7-(1',3', 6',7'-tetrahydroxy-9'-oxo-4'-xanthyl) xanthone 2'-C-beta-D-glucopyranoside.

9302-1135 Peraza-Sanchez, S.R., Pena-Rodriguez, L.M. (Departamento de Química Orgánica. Centro de Investigación Científica de Yucatán, A.C. Apartado Postal 87 Cordemex, Mérida, Yucatán, México 97310) **Isolation of picropolygamain from the resin of Bursera simaruba.** *Journal of Natural Products*, v. 55(12): p. 1768-1771, 1992 (24 ref, Eng).

A bioassay-guided fractionation of the resin extract of *B.simaruba* resulted in the isolation and identification of the bioactive metabolite picropolygamain (C₂₀H₁₆O₆), a 1-aryltetralin lignan having a 2,3-cis-lactone ring and two methylenedioxy moieties in structure.

9302-1136 Phillips, P.S., Symon, D.A., Smith, S. (School of Molecular Sciences, Neve Collège, St. George's Avenue, Northampton NN26JI) **Investigating peppermint oil.** *Education in Chemistry*, v. 29(3): p. 77-79, 1992 (4 ref, Eng).

Analysis of the composition of peppermint (*Mentha piperita*) oil was done through a number of conventional methods, including gas-liquid chromatography, mass spectrometry, nuclear magnetic resonance spectroscopy, infrared spectroscopy. Some of the constituents of oil reported are cineole, p-cymene, menthone, menthyl-acetate, neomenthol and menthol. M.Idris.

9302-1137 Pinto, A.C., Epifanio, R.De.A., Pizzolatti, M.G. (Instituto de Química, Universidade Federal do Rio de Janeiro, Centro de Tecnologia, Bloco A, Cidade Universitária Ilha do Fundão, 21941, Rio de Janeiro, RJ, Brazil) **Diterpenoids from Vellozia declinans.** *Phytochemistry*, v. 31(12): p. 4241-4243, 1992 (13 ref, Eng).

V.declinans contains lupeol, lupenone, 20-hydroxylupan-3-one, betulinic acid, beta-sitosterol, stigmasterol, campesterol and twelve cleistanthane type

diterpenes, two of them reported for the first time as natural products. The n-alkane fraction study is also presented.

9302-1138 Porzel, A., Sung, T.V., Schmidt, J., Lischewski, M., Adam, G. (Institute of Plant Biochemistry, Weinberg 3, D(0)-4010 Halle/Saale, Federal Republic of Germany) **Studies on the chemical constituents of *Kalopanax septemlobus*.** *Planta Medica*, v. 58(5): p. 481-482, 1992 (9 ref, Eng).

The residue of a methanol extract from the bark of *K.septemlobus* afforded liriodendrin (eleutheroside E), glycosides 1 and 3, besides large amounts of saccharose (2 percent). Glycosides 1 and 3 were identified on the basis of spectral data and published literature.

9302-1139 Probstle, A., Bauer, R.* (Institut für Pharmazeutische Biologie, Universität München, Karlstr. 29, D(W)-8000 München 2, Federal Republic of Germany) **Aristolactams and a 4,5-dioxoaporphine derivative from *Houttuynia cordata*.** *Planta Medica*, v. 58(6): p. 568-569, 1992 (10 ref, Eng).

Dried aerial parts of *H.cordata* were successively extracted and four compounds: cepharanone B, aristolactam AII, piperolactam A and norcepharadione B were isolated. Compounds were identified by comparing their physical and spectroscopic properties with those reported in literature.

9302-1140 Quetin-Leclercq, J., Coune, C., Delaude, C., Warin, R., Bassleer, R., Angenot, L. (Institut de Pharmacie, Université de Liège, rue Fusch, 5, B-4000 Liège, Belgium) **Revision of the structure of strychnofluorine, an alkaloid of *Strychnos gossweileri*.** *Phytochemistry*, v. 31(12): p. 4347-4349, 1992 (9 ref, Eng).

The structure of strychnofluorine, an indole alkaloid isolated from the root bark of *S.gossweileri* has been revised. Strychnofluorine proved to be identical with 18-hydroxynorfluorocurarine. Furthermore, it has a low cytotoxic activity on B16 melanoma cells.

9302-1141 Rajaram, N., Janardhanan, K.* (Seed Physiology Laboratory, Department of Botany, Bharathiar University, Coimbatore 641046, Tamil Nadu, India) **Chemical composition and nutritional potential of the tribal pulse, *Abrus precatorius* L..** *Plant Foods for Human Nutrition*, v. 42(4): p. 285-290, 1992 (30 ref, Eng).

The boiled seeds of *A.precatorius* are eaten by the residents of the Andaman Islands in India. The seeds were analysed for proximate composition, total (true) protein, seed protein fractions, amino acid profile of seed proteins, minerals and certain antinutritional factors. The seed proteins are rich in most of the essential amino acids, and

they are deficient only in cystine and threonine, when compared to the WHO/FAO requirement pattern. The antinutritional factors (total free phenols, tannins, trypsin inhibitor activity and haemagglutinating activity) were also investigated.

9302-1142 Ranadive, A.S. (Premier Vanilla, Inc., East Brunswick, New Jersey 08816, USA) **Vanillin and related flavor compounds in vanilla extracts made from beans of various global origins.** *Journal of Agricultural and Food Chemistry*, v. 40(10): p. 1922-1924, 1992 (10 ref, Eng).

Vanilla beans from seven different vanilla growing regions of the world were analyzed for vanillin, p-hydroxybenzoic acid, p-hydroxybenzaldehyde, and vanillic acid. Beans were extracted to obtain singlefold extracts, and analysis was carried out using reversed-phase liquid chromatography. Analysis of the extracts, obtained from cured and uncured beans treated with beta-glucosidase, indicates that all of the above-mentioned compounds are present in green beans as glycosides and are released upon curing. In addition to glycosides of these four known monophenols, there are at least three other major glycosides in green vanilla beans which are hydrolyzed during the curing process.

9302-1143 Rao, E.V., Rajendra Prasad, Y. (Department of Pharmaceutical Sciences, Andhra University, Waltair 530 003, India) **Flavonoids of *Tephrosia hamiltonii*.** *Fitoterapia*, v. 63(5): p. 472, 1992 (5 ref, Eng).

Isolation of O-methyl-pongamol, lanceolatin B, (+)-purpurin and maackain from the chloroform extract of roots of *T.hamiltonii* is reported.

9302-1144 Rao, E.V., Rajendra Prasad, Y. (Department of Pharmaceutical Sciences, Andhra University, Waltair 530 003, India) **Flavonoids of *Tephrosia pentaphylla*.** *Fitoterapia*, v. 63(5): p. 473, 1992 (6 ref, Eng).

Isolation of 2-hydroxypterocarpin from roots and stems, robustigenin and villosol from pods of *T.pentaphylla* is reported.

9302-1145 Rao, K.V., Gunasekar, D. (Department of Chemistry, Sri Venkateswara University, Tirupati 517 502, India) **Constituents of *Cassia hirsuta* flowers.** *Fitoterapia*, v. 63(5): p. 475-476, 1992 (2 ref, Eng).

Isolation of ombuin (0.005 percent), kaempferol (0.004 percent), quercetin (0.002 percent), kaempferol-3-O-rutinoside (0.002 percent) and rutin (0.004 percent) from the dried flowers of *C.hirsuta* is reported.

9302-1146 Reisch, J., Achenbach, S.H. (Institut für Pharmazeutische Chemie, Westfälische Wilhelms-Universität Münster, D-4400 Münster, Germany) **Furanocoumarin glucoside from stem bark of *Skimmia japonica*.** *Phytochemistry*, v. 31(12): p. 4376-4377, 1992 (9 ref, Eng).

From the stem bark of *S. japonica* spp *japonica* the new furanocoumarin glucoside, 2-3-dihydro-9-hydroxy-2-{1-(6-feruloyl)-beta-D-glucosyloxy-1-methylethyl}-7H-furo[3,2g] [1]-benzopyran-7-one has been isolated along with three known coumarin glucosides. They have been found in female and male plants of the species.

9302-1147 Rodrigues Roque, O.L. (Centro de Estudos Farmaceuticos do INIC Laboratorio de Farmacognosia, Faculdade de Farmacia Universidade de Coimbra, Portugal) **Chemical composition of the essential oil of *Ocimum basilicum* L.** *Bulletin de Faculdade de Farmacia de Coimbra*, v. 15(1): p. 47-51, 1991 (1 ref, Eng, Por).

Out of 17 constituents identified in the essential oil of *O. basilicum* the main components are: linalool, eugenol, methyl cinnamate, methylchavicol, terpinen-4-ol, cineol and gamma-terpene. Physico-chemical characteristics of the oil have also been determined.

9302-1148 Roeder, E., Sarg, T., El-Dahmy, S., Ghani, A.A. (Institute of Pharmaceutical Chemistry, University of Bonn, An der Immenburg 4, D-5300 Bonn, 1, FRG) **Pyrrolizidine alkaloids from *Alkanna orientalis*.** *Fitoterapia*, v. 63(5): p. 405-408, 1992 (6 ref, Eng).

Two new pyrrolizidine alkaloids, 7- and 9-angelyltretronecine, in addition to the known dihydroxytriangularine and triangularine have been isolated from *A. orientalis* and their structures have been elucidated by 2D-NMR analysis techniques.

9302-1149 Ruberto, G., Biondi, D., Piattelli, M. (Istituto del C.N.R. Per lo studio delle Sostanze Naturali di Interesse Alimentare e Chimico-Farmaceutico, via del Santuario 110, I-95028, Valverde, Catania, Italy) **The essential oil of Sicilian *Thymus capitatus* (L.) Hoffmanns et Link.** *Journal of Essential Oil Research*, v. 4(4): p. 417-418, 1992 (6 ref, Eng).

GC analysis of essential oil of wild Sicilian *T. capitatus* showed the presence of 31 compounds. The main components accounting for 90.5 percent of the oil were carvacrol (86.3 percent), beta-caryophyllene (2.8 percent) and alpha-elemol (1.4 percent).

9302-1150 Sarg, T., El-Dahmy, S., Abdel Aziz, E., Ghani, A.A., Roeder, E. (Department of Pharmacognosy, Faculty of Pharmacy, Zagazig University, Zagazig, Egypt) **Pyr-**

rolizidine alkaloids from *Echium angustifolium*. *Fitoterapia*, v. 63(5): p. 466-467, 1992 (7 ref, Eng).

Isolation of echimidine and echimide N-oxide from the aerial parts of *E. angustifolium* is reported. Echimidine is a diester of retronecine.

9302-1151 Sarg, T.M., Ateya, A.M., Tarray, N.M., Abbas, F.A. (Department of Pharmacognosy, Faculty of Pharmacy, University of Zagazig, Egypt) **Constituents and biological activity of *Bidens pilosa* L. grown in Egypt.** *Acta Pharmaceutica Hungarica*, v. 61(6): p. 317-323, 1991 (19 ref, Eng).

Ether extracts of *B. pilosa* afforded tridecapentyn-1-ene, trideca-2,12-diene-4,6,8,10-tetrayne-1-ol, trideca-3,11-diene-5,7,9 triyne-1,2-diol and trideca-5-ene-7,9,11 triyne-3-ol. The compounds were identified on the basis of spectroscopic means. Chloroform extracts of the plant yielded on chromatography beta-amyrin beta-phytosterin, esculetin and beta-sitosterol glucoside. Petroleum ether extracts afforded ester, saturated hydrocarbon, alcohol, beta-amyrin, beta-phytosterin, lupeol and its acetate.

9302-1152 Sawaikar, D.D., Pandhare, E.D. (National Chemical Laboratory, Pune 411008, Maharashtra, India) **Chemical constituents of *Maytenus emarginata* Wild.** *Indian Journal of Chemistry*, v. 31B(9): p. 639, 1992 (3 ref, Eng).

From the leaves of *M. emarginata* three triterpenes, friedelan-3-one, beta-amyrin, and 29-nor-cycloartanol and three flavonoids quercetin, myrcetin, and isorhamnetin have been isolated.

9302-1153 Sawamura, M., Shichiri, K.I., Ootani, Y., Zheng, X.H. (Department of Agricultural Chemistry, Faculty of Agriculture, Kochi University B200 Monobe, Nankoku, Kochi 783, Japan) **Volatile constituents of several varieties of pummelos and characteristics among Citrus species.** *Agricultural and Biological Chemistry*, v. 55(10): p. 2571-2578, 1991 (12 ref, Eng).

Cold pressed oil (CPO) from 8 varieties of pummelos were measured and identified. Gamma-terpinene was the second major component in 4-varieties. Cadina-1(10), 6,8-triene was identified by GC-MS in addition to the 63 compounds already identified. Nootkatone was the only discriminating component of the pummelo species from others.

9302-1154 Sayed, H.M., Desai, H.K., Ross, S.A., Pelletier, S.W., Aasen, A.J. (Institute for Natural Products Research and Department of Chemistry, The University of Georgia, Athens, Georgia 30602, USA) **New diterpenoid alkaloids**

from the roots of *Aconitum septentrionale*: isolation by an ion exchange method. *Journal of Natural Products*, v. 55(11): p. 1595-1606, 1992 (23 ref, Eng).

Eight new diterpenoid alkaloids, acoseptrine, acosepticine, 4-anthranoyllapaconidine, acoseptridinine, acoseptridine, acoseptrinine, 14-O-methylforesticine, and 6-demethyldephatine, have been isolated from the roots of *A.septentrionale*, along with seven known alkaloids: N-deacetylappaconitine, septentrionine, sepaconitine, delvestidine, anthranoyllycoctonine, lapaconidine and lycoctonine. The structures of the new compounds were assigned by comparison of spectroscopic data with those of related known compounds.

9302-1155 Seabra, R.M., Vasconcelos, M.H., Cruz Costa, M.A., Alves, A.C. (Centro de Estudos de Quimica Organica, Fitoquimica e Farmacologia, Faculdade de Farmacia da Universidade do Porto, R Anibal Cunha, 4000 Porto, Portugal) **Phenolic compounds from *Hypericum perforatum* and *H.undulatum*.** *Fitoterapia*, v. 63(5): p. 473-474, 1992 (4 ref, Eng).

Quercetin-3-O-glucuronide, quercetin-3-O-xyloside and xanthone mangiferin have been isolated from two samples of aerial parts of *H.perforatum*. Mangiferin has been isolated from the aerial parts of *H.undulatum*.

9302-1156 Seal, T., Dasgupta, S., Mallick, S.K., Mitra, S., Mukhopadhyay, G., Roy, A.K., Guha, K.P., Patra, A., Ray, N.M., Mukherjee, B. (Department of Pharmacology, B.C.Roy Post-Graduate Institute of Basic Medical Sciences 244B, Acharya J.C.Bose Road, Calcutta 700020, India) **Bioactive compounds of *Tiliacora racemosa*.** *International Seminar-Traditional Medicine, Calcutta*, 7-9 November, 1992, p.140-141, (Eng).

T.racemosa has been used traditionally for the treatment of venomous snake bite. This plant was chemically investigated in search of bioactive compounds leading to the isolation of several known alkaloids e.g. tiliacorine, tiliacornine, 2'-nortiliacornine, as well as uncharacterised and completely new alkaloids like tiliarine, tiliamosine, N-methyltiliamosine, tiliarsine, tiliacosine, tiliarsine and N-methyltiliarine, all belonging to diphenylbisbenzylisoquinoline (DBBI) group. Structure and stereochemistry of the alkaloids has been discussed. (Abstr. No.p.8.23).

9302-1157 Sharma, S.K., Ali, M. (Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110062, India) **Evaluation of chemical constituents of *Mangifera indica* (mango).** *Hamdard Medicus*, v. 35(3): p. 110-133, 1992 (194 ref, Eng).

Comprehensive review of chemical constituents of the plant including volatile constituents, steroids, triter-

penoids, phenolic compounds, resins, fatty acids, lipids, carbohydrates, vitamins, proteins, amino acids, carotenoids, and elements has been presented.

9302-1158 Sharma, S.K., Chawla, H.M. (Department of Chemistry, Indian Institute of Technology, Hauz Khas, New Delhi 110 016, India) **Isococcolinine: A new isoquinoline alkaloid from *Erythrina variegata* flowers.** *Indian Journal of Heterocyclic Chemistry*, v. 2(2): p. 71-74, 1992 (15 ref, Eng).

The structure of isococcolinine a new alkaloid isolated from the acetone extract of flowers of *E.variegata* and purified by preparative thin layer chromatography, has been discussed. NSL, New Delhi.

9302-1159 Shibuya, T. (Department of Chemistry, Faculty of Science, Hirosaki University, Hirosaki 036, Japan) **Cryptoquinonemethides D and E, C30-terpene quinone methides, from *Cryptomeria japonica*.** *Phytochemistry*, v. 31(12): p. 4289-4294, 1992 (16 ref, Eng).

Two new C30-terpene quinone methides, named cryptoquinonemethides D and E, were isolated from the cones of *C.japonica* in addition to three known quinone methides, chamaecydin, isochamaecydin, and chamaecydinol. The structures of new quinone methides were characterized as 21 α - and 21 β -hydroxy-21-deoxochamaecydins by chemical and spectroscopic methods. Furthermore, the structure of isochamaecydin was reinvestigated and determined unambiguously.

9302-1160 Shukla, Y.N., Thakur, R. (Central Institute of Medicinal and Aromatic Plants, Lucknow 226 016, UP, India) **Tropane alkaloids from *Duboisia myoporoides*.** *Phytochemistry*, v. 31(12): p. 4389-4390, 1992 (4 ref, Eng).

Besides butropine, valtropine, apoatropine and 6 β -hydroxyhyoscyamine, a new alkaloid isolated from the leaves of *D.myoporoides* has been characterized as tropane nonanoate by spectral and chemical methods.

9302-1161 Siddiqui, B.S., Ghiasuddin, Faizi, S., Siddiqui, S. (HEJ Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Triterpenoids from the fresh fruit coats of *Azadirachta indica*.** *Phytochemistry*, v. 31(12): p. 4275-4278, 1992 (15 ref, Eng).

Three novel degraded triterpenoids, desfurano-azadiradione {7 α -acetoxy-4, 4,8-trimethyl-5 α -(13 α Me)-androsta-1,14-dien-3,16-dione}, 7 α -acetoxy-4,4,8-trimethyl-5 α -(13 α Me)-17-oxa-androsta-1,14-dien-3,16-dione and 7 α -acetoxy-4,4,8-trimethyl-5 α -17-oxa-androsta-1,14-dien-3,16-dione which were isolated from the neutral fraction of the

ethanolic extract of the fresh, undried uncrushed ripe neem fruit coats of *A.indica* are described. Their structures were elucidated through spectroscopic methods. It is the first report of the isolation of such degraded triterpenoids of this skeleton from any plant source.

9302-1162 Siddiqui, S., Siddiqui, B.S/, Naeed, A., Begum, S. (H.E.J. Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Pentacyclic triterpenoids from the leaves of *Plumeria obtusa*.** *Phytochemistry*, v. 31(12): p. 4279-4283, 1992 (22 ref, Eng).

Nine pentacyclic triterpenoids along with a coumarin have been isolated from the fresh, undried and uncrushed spring leaves of *P.obtusa*. The new triterpenes obtusin and obtusilic acid have been characterized as the 24-E and 27-Z-p-coumaric esters of the novel 3beta, 24-dihydroxyurs-12-en-28-oic acid and 3beta, 27-dihydroxyurs-12-en-30-oic acid, respectively, through chemical and spectral studies while the other eight compounds have been identified as known kaneroside, oleandrin, alpha-amyrin, neriucoumaric acid, isoneriucoumaric acid, alphitolic acid, oleanonic acid, methyl p-E-coumarate and scopoletin hitherto unreported from this source.

9302-1163 Siems, K., Dominguez, X.A. , Jakupovic, J.(Institut fur Organische Chemie, Technische Universitat Berlin, D-1000 Berlin 12, Germany) **Diterpenes and other constituents from *Croton cortesianus*.** *Phytochemistry*, v. 31(12): p. 4363-4365, 1992 (11 ref, Eng).

The aerial parts of *C.cortesianus* afforded, in addition to known compounds, a new clerodane, a printziane and a norclerodane. The conformation of 1-O-methyl-mucoinositol isolated as its pentaacetate was studied by low temperature ¹H NMR spectroscopy.

9302-1164 Singh, S., Sawhney, V.K.(Department of Biology, University of Saskatchewan, Saskatoon, SK, Canada S7N 0W0) **Plant hormones in *Brassica napus* and *Lycopersicon esculentum* pollen.** *Phytochemistry*, v. 31(12): p. 4051-4053, 1992 (21 ref, Eng).

Cytokinin bases, ribosides, O-glucosides and nucleotides, as well as indole-3-acetic acid and abscisic acid were quantified by enzyme-linked immunosorbent assay in mature pollen of *B.napus* and *L.esculentum*. The O-glucosides were the major cytokinins present in pollen of both species. However, pollen of *L.esculentum* had higher levels of total cytokinins, IAA and ABA in comparison to that of *B.napus*.

9302-1165 Sood, R.P., Singh, B., Singh, V.(CSIR Complex, Palampur 176061, HP, India) **Constituents of rose oil from Kangra Valley, HP (India).** *Journal of Essential Oil Research*, v. 4(4): p. 425-426, 1992 (4 ref, Eng).

Thirty-two compounds have been characterised by GC/MS and relative retention time in the oil of *Rosa damascena*. The major components were citronellol (40 percent), geraniol (14.49 percent), nonadecane (12.3 percent), heneicosane (6.69 percent) and phenylethylalcohol..

9302-1166 Sun, X.B., Matsumoto, T., Yamada, H.(Oriental Medicine Research Centre of the Kitasato Institute, 5-9-1 Shirokane, Minato-ku, Tokyo 108, Japan) **Purification of an anti-ulcer polysaccharide from the leaves of *Panax ginseng*.** *Planta Medica*, v. 58(5): p. 445-448, 1992 (17 ref, Eng).

The most active polysaccharide fraction (GL-4) of roots of *P.ginseng* was purified by anion-exchange chromatography and gel filtration, and the most active purified polysaccharide, GL-4IIb1, III was obtained. GL-411b1, III (average relative molecular mass, 16000d) had the nature of a pectic polysaccharide, and was composed mainly of galactose and galacturonic acid with small proportions of rhamnose, arabinose, mannose, glucose, and glucuronic acid. GL-411b1,III prevented HCl/ethanol-induced ulcerogenesis in mice dose dependently.

9302-1167 Sushma Prakash, Singh, S.P.(Division of Forest Products, Forest Research Institute, Dehra Dun, UP, India) **Studies on tannins from mangrove bark and myrobalan (*Terminalia chebula*) nuts.** *Indian Journal of Forestry*, v. 15(3): p. 250-253, 1992 (10 ref, Eng).

Tannins from mangrove bark and myrobalan nuts were purified and analysed for their elemental composition, functional groups and molecular weight. After purification the tannin content increased from 60 percent to 81 percent in mangrove and from 54 percent to 84 percent in myrobalan while their non-tannin content decreased from 34 percent to 9 percent and from 36 percent to 10 percent respectively.

9302-1168 Takatsuto, S., Abe, H.(Department of Chemistry, Joetsu University of Education, Joetsu-shi, Niigata 943, Japan) **Sterol composition of *Strobilus of Equisetum arvense* L..** *Bioscience, Biotechnology and Biochemistry*, v. 56(5): p. 834-835, 1992 (4 ref, Eng).

Methanol extraction of *E.arvense* on chromatography yielded 24-methylenecholesterol, campesterol, isofrosterol, and sitosterol.

9302-1169 Takeda, Y., Ikawa, A., Matsumoto, T., Terao, H., Otsuka, H.(Faculty of Integrated Arts and Sciences, The University of Tokushima, Tokushima 770, Japan) **Diter-**

penoid constituents of *Rabdosia longituba*. *Planta Medica*, v. 58(5): p. 470-471, 1992 (6 ref, Eng).

From the aerial parts of *T. longituba* two new diterpenoids, Compound I and II, along with trichorabdal C were isolated. Compound I was characterized as 3-O-deacetyl derivative of maoecrystal J, compound II was identified as trichorabdal G acetate by direct comparison with authentic samples.

9302-1170 Takeoka, G.R., Buttery, R.G., Flath, R.A. (Agricultural Research Service, US Department of Agriculture, 800 Buchanan Street, Albany, California 94710, USA) **Volatile constituents of Asian pear (*Pyrus serotina*).** *Journal of Agricultural and Food Chemistry*, v. 40(10): p. 1925-1929, 1992 (22 ref, Eng).

The volatiles of Asian pear (Seuri cultivar) were studied by high-resolution gas chromatography and combined gas chromatography/mass spectrometry (GC/MS) using vacuum simultaneous distillation-extraction of blended fruit and dynamic headspace sampling of intact and enzymatically inhibited blended fruit. Esters were the dominant constituents in all of the samples. A total of 72 components were identified in the headspace of intact fruit, including 39 constituents reported for the first time in pear. Odor unit calculated from concentration and odor threshold data indicate that the following compounds are important contributions to pear aroma: ethyl 2-methylbutanoate, ethyl hexanoate, ethyl butanoate, ethyl 2-methylpropanoate, hexyl acetate, ethyl heptanoate, hexanal, ethyl pentanoate, and ethyl propanoate.

9302-1171 Tamura, H., Yang, R.H., Sugisawa, H. (Department of Bioresource Science, Kagawa University, Kagawa, Japan) **Aroma profile of peel oils of citrus (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco).** *Parfumerie und Kosmetik*, v. 73(10): p. 732, 1992 (Eng).

GC-sniffing tests and multivariate statistical analysis have shown that monoterpene alcohols and their esters, aldehydes for example geranial, geraniol, and neral contributed to the characteristic aroma of lemon and lime. Citronellal, citronellol and carvone contributed to sudachi and citronellol, 2-decenal, and geranyl acetate to kabosu. Unsaturated aliphatic aldehydes contributed especially to yuzu.

9302-1172 Tan, R.X., Jia, Z.J., Zhao, Y. (Institute of Organic Chemistry, Lanzhou University, Lanzhou 730000, People's Republic of China) **Sesquiterpene lactones and other constituents from *Artemisia feddei*.** *Planta Medica*, v. 58(5): p. 459-460, 1992 (16 ref, Eng).

The aerial parts of *A. feddei*, common in the NW of China, contain several widespread plant constituents and five sesquiterpene lactones two of which are new guaianolides. The structures were elucidated by spectroscopic methods.

9302-1173 Tanahashi, T., Shimada, A., Nagakura, N.*, Nayeshiro, H. (Kobe Women's College of Pharmacy, 4-19-1, Motoyamakita-machi, Higashinada-ku, Kobe 658, Japan) **Jasamplexosides A, B and C: Novel dimeric and trimeric secoiridoid glucosides from *Jasminium amplexicaule*.** *Planta Medica*, v. 58(6): p. 552-555, 1992 (9 ref, Eng).

Three new secoiridoid glucosides, jasamplexosides, A, B and C, were isolated from the crude drug "Niu du teng", the leaves and stems of *J. amplexicaule* together with the known secoiridoid glucosides, 10-hydroxylogstroside and jasminoside. Their structural elucidation by spectroscopic studies is described.

9302-1174 Tanaka, R., Usami, Y., In, Y., Ishida, T., Shingu, T., Matsunaga, S.* (Osaka University of Pharmaceutical Sciences, 2-10-65 Kawai, Matsubara, Osaka 580, Japan) **Structure of spiroveitchionolide, an unusual lanostane-type triterpene lactone from *Abies veitchii*.** *Journal of the Chemical Society, Chemical Communications*, No. 18: p. 1351-1352, 1992 (11 ref, Eng).

The structure of spiroveitchionolide, a novel triterpene lactone (C₃₁H₄₈O₅, mp 239.5-42 degree C) isolated from the stem bark of *A. veitchii* (yield 0.017 percent), has been established as (3R, 7S, 9R, 23R)-7-hydroxy-3-methoxy-8-oxo-7-(8 to 9) abeo-lanost-24-ene-26, 23-lactone on the basis of chemical, spectral and single crystal X-ray crystallographic evidence.

9302-1175 Tewari, L.C., Agarwal, R.G., Pandey, G., Uniyal, M.R. (Amalgamated Units, CCRAS, Tarikhet (Ranikhet), UP, India) **Screening of some important herbal drugs for potent therapeutic agents recommended for cure of AIDS in Ayurveda.** *Sachitra Ayurved*, v. 44(6): p. 428-433, 1991 (7 ref, Eng).

Forty seven plant species belonging to 29 families have been analysed for important chemical constituents. Of these, 32 plant species gave positive test for alkaloids, 28 for flavonoids, 29 for glycosides, 34 for saponins, 39 for sterols and 26 for terpenoids.

9302-1176 Thomas, A.F., Bassols, F. (Reesarh Laboratory, Firmenich SA, Case Potale 239, CH-1211 Geneve 8, Switzerland) **Occurrence of pyridines and other bases in orange oil.** *Journal of Agricultural and Food Chemistry*, v. 40(11): p. 2236-2243, 1992 (44 ref, Eng).

Cold-pressed Florida (Valencia) orange oil contains a series of bases, the main one of which is 3-hexylpyridine at Ca.22 ppb. Smaller amounts of 3-heptyl-, 3-octyl-, and 5-hexyl-2-methylpyridine are also present, as are 3-(4-methylpentyl)- and 3-(4-methylheptyl) pyridine. There are traces of other, more generally known, pyridien, 3-Hexyl-, 3 heptyl-, and 3-octylpyridien and 5-hexyl-2-methylpyridine were also detected in Brazilian (Pera) orange oil. The flavor threshold concentration of 3-hexylpyridine in water is 0.28 ppb.

9302-1177 Tinto, W.F., Mclean, S., Reynolds, W.F. (Centre for Natural Products Chemistry, University of Guyana, Georgetown, Guyana) **Hortiamide, a new tyramine alkaloid from *Hortia regia***. *Journal of Natural Products*, v. 55(11): p.1676-1678, 1992 (5 ref, Eng).

A new tyramine derivative, hortiamide (C₂₀H₂₃O₂N; mp 109-11 degree) was isolated from the roots of *H.regia*. The structure was determined from a series of 2D NMR experiments. 5-Methoxy-2,2-dimethyl-1-2H-benzopyran-6-propanoic acid has also been isolated for the first time as the free acid.

9302-1178 Tsuneya, T. (Research Laboratories, Shiono Koryo Kaisha, Osaka, Japan) **Trace components in spearmint oil and their sensory evaluation** (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): 732, 1992 (Eng).

The basic part in Scotch spearmint *Mentha spicata* oil was investigated by means of GC, GC-MS and other analytical instrumetns. Forty four nitrogen compounds were identified astrace components in the oil. Among them 11 pyridine compounds, including 2-acetyl-4-isopropenylpyridine, were isolated and identified for the first time. The odour qualities of these compounds were evaluated and their role in spearmint flavour discussed.

9302-1179 Tu, Y.Q., Wu, D.G. (Department of Chemistry, Lanzhou University, Lanzhou 730000, PRC) **Chemical constituents and biological activity of celastraceae plants**. *Chinese Science Bulletin*, v. 37(14): p. 1212-1215, 1992 (9 ref, Eng).

Structures of two new sesquiterpenoids isolated from the root bark of *C.rosthornianus* have been given. Insecticidal and antifeedant activities of five sesquiterpenoids including three isolated from *C.gemmatius* have also been reported.

9302-1180 Tucker, A.O., Maciareello, M.J., Hill, M. (Department of Agriculture and Natural Resources, Delaware State College, Dover, DE 19901-2275, USA)

***Litsea glaucescens* Humb, Bonpl. & Kunth var. *glaucescens* (Lauraceae): A Mexican bay**. *Economic Botany*, v. 46(1): p. 21-24, 1992 (16 ref, Eng).

Thirty one compounds were identified in the essential oil of *L.glaucescens* var. *glaucescens* leaves, dominated by 1,8-cineole, sabinene and terpinen-4-ol. In contrast, the oil of Greek bay (*Laurus nobilis*) leaves was found to be dominated by 1,8-cineole and alpha-terpinyl acetate. The yield of oil from the Mexican bay leaves was about one quarter that of Greek bay. Mexican bay which adds a bay-like note, has not been suggested as a substitute for the Greek bay. Pinocarvone and (E)-pinocarveol have been reported for the first time in the essential oil of *L.nobilis* leaves.

9302-1181 Tucker, A.O., Macirello, H.J. (Department of Agriculture and Natural Resources, Delaware State College Dover, DE 19901-2275) **The essential oil of *Origanum laevigatum* Boiss (Labiatae)**. *Journal of Essential Oil Research*, v. 4(4): p. 419-420, 1992 (3 ref, Eng).

Nineteen compounds have been characterised by GC/MS and relative retention times in an oil of *O.laevigatum* were analysed. The major compounds are bicyclogermacrene (24.58 percent), germancrene D (20.46 percent), beta-caryophyllene (16.82 percent) and myrcene (11.64 percent)..

9302-1182 Veen, G., Schmidt, C., Witte, L., Wray, V., Czygan, F.C. (Department of Pharmaceutical Biology, University of Wurzburg, Mittlerer Dallenbergweg 64, 8700 Wurzburg, FRG) **Lupin alkaloids from *Lupinus polyphyllus***. *Phytochemistry*, v. 31(12): p. 4343-4345, 1992 (14 ref, Eng).

Twenty-nine quinolizidine alkaloids have been found and characterized from the combined leaf/hypocotyl extracts of *L.polyphyllus*. Twelve have not been found reviously in this plant and structure of 10 has been unambiguously assigned from a combination of mass spectroscopy and NMR data, and by direct comparison with synthetic material for the N-carboxymethyl ester, N-carboxyethyl ester and N-formly derivatives of angustifoline. The co-occurrence of 13 alpha-hydroxylupanine and its 13beta-isomer is reported for the first time in a quinolizidine alkaloid-accumulating species.

9302-1183 Velasco-Negueruela, A., Perez-Alonso, M.J., Pedro Luis Perez de Paz (Departamento de Biología Vegetal (Botánica), Facultad de Biología, Universidad Complutense de Madrid 28040, Madrid, Spain) **The volatiles of two *Bystropogon* species from the canary Islands (Spain)**. *Planta Medica*, v. 58(5): p. 461-463, 1992 (9 ref, Eng).

The essential oils of two species of the mint family endemic to the Canary Islands (Spain) have been analyzed by a combination of GLC/MS, retention indices, IR, ¹³C-NMR and ¹H-NMR spectra. The major components of the volatile oils were found to be pulegone, isomenthone, and menthone in *B. origanifolius* and 3-octyl acetate, limonene, and trans-beta-caryophyllene in *B. canariensis*.

9302-1184 Wall, M.E. (Research Triangle Institute, Box 12194, research Triangle Park, North Carolina 27709, USA) **Antimutagenic agents from natural products.** *Journal of Natural Products*, v. 55(11): p. 1561-1568, 1992 (28 ref, Eng).

Certain secondary metabolites found in terrestrial and marine plants and organisms have evinced the capability for inhibiting the mutagenicity toward *Salmonella typhimurium* of a number of mutagens. These include 2-aminoanthracene (2AN), ethylmethanesulfonate (EMS), and benzo-*a* pyrene. Major classes of antimutagenic compounds that have been isolated from plants including flavonoids, coumarins xanthenes and cymopols have been discussed.

9302-1185 Wang, N., Nako, S., Ueda, K., Niwa, M. (Faculty of Pharmacy, Meijo University, Tempaku, Nagoya 468, Japan) **Phenolic constituents of Wikstroemia retusa.** *Planta Medica*, v. 58(6): p. 573, 1992 (5 ref, Eng).

The BuOH fraction of fresh stems of *W. retusa* afforded daphnoretin (1.2g) daphnorin (29mg), and rutarensin (135mg). Biflavonoids have not been found in the above fractions. The ACO et fraction yielded daphnotetin (0.4g) and tricin (20 mg).

9302-1186 Wang, Yu. (Shanghai Institute of Organic Chemistry, Academia Sinica, 345 Lingling Lu, Shanghai 200 032, China) **Major achievements in the chemistry of organic natural products in the main land China.** *Youji Huaxue*, v. 12(Supplement): p. 1-11, 1992 (6 ref, Eng).

Major work done in the field of alkaloids, terpenoids, antibiotics, insect hormones, pheromones, steroids, carbohydrates, peptides, proteins, nucleosides, nucleitides and nucleic acids in China since 1949 has been reviewed.

9302-1187 Watanabe, I., Awano, K., Takasawa, T. (Hasegawa Co. Ltd., Kawasaki Research Centre, Japan) **Volatile components of apricot blossoms (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco).** *Perfumerie und Kosmetik*, v. 73(10): p. 730, 1992 (Eng).

A total of 83 volatile components of apricot blossoms were identified. Extraction with hexane, removing of the solvent, the residue was distilled to yield a distillate which was fractionated into these fractions by column chromatog-

raphy. These fractions were analyzed by GC and GC-MS. Lilac alcohol, lilac aldehyde, lilac acetate and (2Z)-2,6-dimethyl-2,7-octadien-1,6-diol were confirmed by synthesis. The latter two were new compounds.

9302-1188 Weyerstahl, P., Marschall-Weyerstahl, H., Pradhan, B.P., Gundidza, M. (Institut für Organische Chemie, Technische Universität Berlin Strasse des 17 Juni, 135, D-1000 Berlin 12, Germany) **Constituents of the essential oil of Nidorella resedifolia DC.** *Journal of Essential Oil Research*, v. 4(4): p. 319-324, 1992 (5 ref, Eng).

Essential oil was analysed by the combination of GC, GC/MS and NMR and found to contain monoterpene hydrocarbons; beta-pinene, limonene and lavandulyl esters; lavandulyl acetate, lavandulyl isobutyrate, lavandulyl isovalerate and lavandulyl 2-methyl butyrate. A new sesquiterpene alcohol, beta-bisabolene-12-ol was characterized for the first time in this oil.

9302-1189 Wu Dagang, Liu Jikai*, Cheng Chunguan. (Department of Chemistry, Zhongshan University, Guangzhou 510275, People's Republic of China) **Angulatueoid G and H, sesquiterpenes from the seeds of Celastrus angulatus.** *Phytochemistry*, v. 31(12): p. 4219-4222, 1992 (12 ref, Eng).

Two new sesquiterpenes, angulatueoid G and H, were isolated from the seeds of *C. angulatus*. Their structures were elucidated on the basis of spectroscopic data and chemical methods. Angulatueoid G showed insect antifeedant effect against *Aulacophora femoralis* and *Piutella xylostella*.

9302-1190 Wu, H.M., Huang, S.Y., Lao, X.F., Ma, K., Zhou, H.Q. (National Key Laboratory of Bio-Organic and Natural Products Chemistry, Shanghai Institute of Organic Chemistry, 200032 Shanghai, China) **Study on the structure of the polysaccharide from Hedyotis diffusa willd.** *Youji Huaxue*, v. 12(4): p. 428-431, 1992 (8 ref, Eng).

The distilled-water extract of *H. diffusa* was precipitated by 95 percent ethanol and purified by Sephadex G-200 to give a pure polysaccharide HD-W-3-B with Mw=1,600,000. The polysaccharide is composed of six sugars: Rha, Ara, Xyl, Man, Gal and Glc. Its preliminary structure was proposed by analysis of its methylation.

9302-1191 Yeo, H., Kim, J., Chung, B.S. (College of Pharmacy, Seoul National University, Seoul 151-742, Korea) **Phytochemical studies on the constituents of Filipendula glaberrima.** *Korean Journal of Pharmacognosy*, v. 23(3): p. 121-125, 1992 (19 ref, Kor, Eng).

Three compounds were isolated from the chloroform and n-butanol extracts of *F. glaberrima*. The structures of

these isolates were elucidated as monotropitin, (+)-catechin, and beta-sitosteryl-3-O-beta-D-glucopyranoside by spectroscopic analysis, and were identified by comparison of their spectra with those of reported ones.

9302-1192 Yu Wen-Sheng, Li Hong, Chen Xin-Min, Yang Lei (Chengdu Institute of Biology, The Chinese Academy of Sciences, Chengdu 610041, People's Republic of China) **Two afzelechin glycosides from *Arthromeris mairei*.** *Phytochemistry*, v. 31(12): p. 4385-4386, 1992 (5 ref, Eng).

Two new afzelechin glycosides named arthromerin A and B were isolated from the roots of *A. mairei*. Their structures were determined to be afzelechin-3-O-beta-D-xylopyranoside and afzelechin-3-O-beta-D-glucopyranoside, respectively. A purgative compound multiflorin A and another two known compounds were also isolated and identified.

9302-1193 Zhang Rong Ping, Zhang Hongjie, Lin Zhongwen, Zhen Yulin, Sun handong* (Laboratory of Phytochemistry, Kunming Institute of Botany, Academia Sinica, Kunming, 650204, China) **Diterpenoids from *Isodon adenoloma*.** *Phytochemistry*, v. 31(12): p. 4237-4240, 1992 (6 ref, Eng).

Five new ent-kaurene diterpenoids, adenolin A-E, and a known compound, longikaurin D were isolated from the air-dried leaves of *I. adenoloma*. The structures were established by spectroscopic means.

9302-1194 Zhi-Xin-Yuan, Patel, A.V., Blunden, G., Turner, C.H. (School of Pharmacy and Biomedical Sciences, University of Portsmouth, King Henry 1 Street, Portsmouth, Hampshire PO1 2DZ, UK) **Trans-4-hydroxypipelicolic acid betaine from *Lamium maculatum*.** *Phytochemistry*, v. 31(12): p. 4351-4352, 1992 (8 ref, Eng).

From the aerial parts of *L. maculatum*, prolinebetaine, trans-4-hydroxyprolinebetaine, pipelicolic acid betaine and trans-4-hydroxypipelicolic acid betaine have been isolated. The last of these compounds is a new natural product.

9302-1195 Ziegler, H., spiteller, G. (Lehrstuhl für Organische Chemie I, Universität Bayreuth, Postfach, 101251, Universitätsstrasse 30, 8580, Bayreuth, Germany) **Identification of sinapyl alcohol derivatives in Sicilian lemon oil (*Citrus limon* (L.) Burm.).** *Journal of Essential Oil Research*, v. 4(4): p. 355-361, 1992 (25 ref, Eng).

3-(3',4',5'-Trimethoxyphenyl)-propanyl acetate and propionate, as well as, 3-(3',4',5'-trimethoxyphenyl)-2-propenyl acetate and propionate were identified in a low volatile fraction isolated from cold-pressed Sicilian lemon oil. The propionates are hitherto unknown natural products;

the acetates have not been reported so far as constituents of lemon oil.

Chemotaxonomy

9302-1196 . Search for some system in the essential oils of *Eucalyptus* and related genera (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): 730, 1992 (Eng).

Informal classification of the *Eucalyptus* has split up the monolithic genus *Eucalyptus* containing 800+species into 10 informal genera containing from 1 to 500+species. An examination of the leaf essential oils of the *Eucalyptus*, to determine any correspondence between informal classification and the oils, was carried out and the results discussed.

9302-1197 Holden, A.N.G., Mahlberg, P.G.* (Department of Biology, Indiana University, Bloomington, IN 47405, USA) **Application of chemotaxonomy of leafy spurge (*Euphorbia* spp.) in biological control.** *Canadian Journal of Botany*, v. 70(8): p. 1529-1536, 1992 (20 ref, Eng, Ger).

Qualitative and quantitative differences for components of the terpenoid profiles were employed to distinguish between accessions *Euphorbia* spp. Triterpenoid profiles were diagnostic for the species *E. amygdaloides*, *E. agraria*, *Ecyparissias*, *E. lucida* and *E. seguierana* and were similar for each of these species in accessions collected from distant areas of Europe. By contrast, the 37 accessions of the *E. esula* complex were separated into 15 groups on qualitative and quantitative differences for components in the profiles. Identical profiles were detected among neighbouring accessions as well as those in collections from widely distant sites; conversely, different profiles were also identified for such collections. Profiles among these groups were compared with profiles of 39 United States (US) accessions from Montana, Nebraska, North Dakota, and South Dakota. Profiles of US accessions, which were less variable than those from Europe, grouped into only 3 of the 15 European groups, whereas one US group could not be placed directly into a European group.

9302-1198 Jurzysta, M., Burda, S., Oleszek, W., Ploszynski, M. (Department of Biochemistry and Crop Quality, Institute of Soil Science and Plant Cultivation, 24-100 Pulawy, Poland) **Chemical composition of seed saponins as a guide to the classification of *Medicago* species.** *Canadian Journal of Botany*, v. 70(7): p. 1384-1387, 1992 (14 ref, Eng).

The presence of saponins and their aglycones (sapogenins) was surveyed in seeds of 33 species of *Medicago*. The four major subsections of the largest taxonomic section of *Medicago* section *Spirocarpus*, can generally be distinguished by presence and (or) absence of medicagenic acid and zanhic acid. The latter sapogenin was found only in three of the subsections of *Spirocarpus* and seems to reflect the phylogenetic recency of these groups within *Medicago*. The distribution of zanhic acid in combination with other considerations proved useful in establishing that *M.granadensis* seems to be the oldest species in subsection *Intertextae*. The saponin profile of *M.hybrida*, most recently assigned to section *Medicago* strongly supports the placement of this species and its relative *M.sufruticosa* in a separate section. Hemolytic saponins proved to be much more common in those species of *Medicago* that retain their seeds permanently within the fruit compared with species that tend to scatter their seeds.

9302-1199 Nakai, S., Vodovotz, Y.(University of British Columbia, Vancouver, Canada) **Classification of two mango varieties of different maturity by headspace GC** (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 730, 1992 (Eng).

The classification of two Mexican mango varieties ripened under two conditions was attempted using several multivariate analysis techniques. The aroma of the different mango purees was analyzed using both capillary GC and sensory analysis. Results showed that all of the parameters measured (like area count of relevant peaks, those from trained sensory panel, Magnes Taylor pressure values, initial pH and acid/sugar ratios) were important for the classification.

Ethnomedicine

9302-1200 Akendengue, B.(Department of Traditional Medicine and Pharmacopoeia, CICIBA, B.P. 770 and Department of Chemistry and Biochemistry, Faculty of Medicine and Health Sciences, Libreville, Gabon) **Medicinal plants used by the fang traditional healers in equatorial guinea.** *Journal of Ethnopharmacology*, v. 37(2): p. 165-173, 1992 (12 ref, Eng).

An ethnobotanical study of fifty one medicinal plants belonging to thirty four families, used by the Fang traditional healers of two regions of Equatorial Guinea in Central Africa: Malabo and Bata has been reported. For each species listed, family, botanical name, voucher specimen number, vernacular name, pharmacological and therapeutical properties are given.

9302-1201 Ansari, A.A.(Botanical Survey of India, Pauri Garhwal-246001, UP, India) **Ethnobotany of *Urtica ardens* link (Urticaceae).** *Journal of Economic and Taxonomic Botany*, v. 16(2); p. 391-392, 1992 (2 ref, Eng).

Medicinal uses, witchcraft and other uses of *U.ardens*, locally locally as kandali, sisar or Bichchooghass by the local population of Garhwal and Kumaon Himalaya have been described.

9302-1202 Balabanova, S., Parsche, F., Pirsig, W.(Institut fur Anthropologie und Humangenetik der Universitat, W-8000, Munchen, FRG) **First identification of drugs in Egyptian mummies.** *Naturwissenschaften*, v. 79(5): p. 358, 1992 (7 ref, Eng).

The use of drugs in ancient societies permits insight into the social behaviour and medical practices of the past. As part of an ongoing investigation of hallucinogenic substances in ancient societies, this preliminary study reports the identification of cocaine, hashish and nicotine in Egyptian mummies providing samples of soft tissue, bone and hair. Drugs were detected by radioimmunoassay and gas chromatography/mass spectrometry.

9302-1203 Barua, N.C., Mathur, R.K., Ghosh, A.C.(Division of Natural Products Chemistry, Regional Research Laboratory, Jorhat 785006, Assam, India) **Plant based traditional remedies of northeast India.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 75, 1992 (Eng).

Northeast India is very rich in forestry. There are some plants in this region which are not commonly found in other parts of India. Almost all plants of this region find use as traditional remedies for one ailment or the other and are mostly unexplored scientifically from commercial as well as academic points of view. In this paper some of the plants which are used in this area for treatment of diseases like high blood pressure, bronchitis, cancer, heart disease, kidney stone and troubles, liver disorders, malaria, piles, whooping cough, worm infestations etc are described. In addition to this some of the probable commercially exploitable sources of anticancer, anti-HIV and antihypertensive drugs and drug precursors were discussed. (Abstr. No. IL 1B).

9302-1204 Bedi, R.(L-6. Rajouri Garden, New Delhi 110027, India) **Herbal Wealth of Brazil (a dictionary of Hindi, Sanskrit, English, Latin and Portugese names of medicinal plants found in Brazil).** *Sachitra Ayurved*, v. 45(2): p. 125-128, 1992 (Eng).

Hindi, Sanskrit, English, Latin and Portugese names of eight plants found in Brazil have been given. Uses of *Cannabis indica* in India and other countries have been elaborated.

9302-1205 De Feo, V. (Dipartimento di Chimica delle Sostanze Naturali, Università degli Studi "Federico II", Via D. Montesano 49, 80131 Napoli, Italy) **Medicinal and magical plants in the northern peruvian Andes.** *Fitoterapia*, v. 63(5): p.417-440, 1992 (21 ref, Eng).

Based on a survey, the uses of medicinal and magical plants by the Shamans of northern Peru are reported. Medicinal plants are widely used in the treatment of numerous human diseases and are often the sole available remedies. Euphorbiaceae, Solanaceae and Asteraceae are the families from which the largest number of the species used in traditional medicine are drawn.

9302-1206 Gentry, A.H. (Missouri Botanical Garden, PO Box 299, St. Louis, Missouri, USA) **A synopsis of Bignoniaceae, ethnobotany and economic botany.** *Annals of the Missouri Botanical Garden*, v. 79(1): p. 53-64, 1992 (66 ref, Eng).

Bignoniaceae include attractive ornamental flowering trees and lianas and produce hard and durable timbers, many pharmacologically active chemicals, various products used in local handicrafts, and even a few edible seeds and fruits. A number of plants of family Bignoniaceae has been mentioned in the categories of horticulture, ornamentals, food, handicrafts, timber, dyes, poisons, medicines and plants used in rituals.

9302-1207 Hemadri, K., Rao, S.S.B. (Regional Research Centre (Ay.), Vijayawada 520010, AP, India) **Folklore claims of Koraput and Phulbani District of Orissa State.** *Indian Medicine*, v. 2(1): p. 4-6, 1990 (Eng).

The plants being used in folk medicine in Orissa (Koraput and Phulbani districts.) have been enumerated. The information on botanical and local names, family, part used, doses mode of administration, etc is provided.

9302-1208 Hemadri, K. (Regional Research Centre, CCRAS, Vijayawada 520010, AP, India) **Tribals of Andhra Pradesh : Their knowledge in nutritional and medicinal herbs.** *Indian Medicine*, v. 4(3): p. 1-6, 1992 (Eng).

Some of the herbal recipes prepared out of roots, barks leaves, fruits and seeds offered by the tribals of Andhra Pradesh as preventive, curative and restorative medicine have been described.

9302-1209 Imam, S., Hussain, S.J., Gupta, V.C., Hussain, M. (Central Research Institute for Unani Medicine, Hyderabad, India) **Folk-herbal drugs for snake-bite from Andhra Pradesh forests.** *International Seminar- Traditional Medicine, Calcutta, 7-9 November 1992*, p. 144, (Eng).

Snake bite is a major problem in India, particularly in rural areas. The knowledge of herbal drugs used in snake bite is scanty and hence discrete. An attempt has been made to collect folk-medicines used for snake-bite from different forest areas of Andhra Pradesh. Botanical identity, pharmacognosy, pharmacology, parts used and mode of administration of twelve folk medicines used for snake-bite was discussed. (Abstr. No. P 8.30).

9302-1210 Joshi, G.C., Uniyal, M.R. (Amalgamated Units, CCRAS, Tarikhet, Ranikhet, UP, India) **Folk medicinal importance of 'Udsaleeb', *Paeonia emodi* Wall and its cultivation strategy from Western Himalaya.** *Sachitra Ayurved*, v. 44(2): p. 124-125, 1991 (Eng).

Medicinal uses of *P. emodi*; its botanical characters; distribution and folk uses in UP hills, Himachal Pradesh and Jammu & Kashmir have been described. Over exploitation of the tubers for trade, erosion of habitat and disturbances in forests have brought this plant on the verge of extinction. Western Himalaya possesses favourable climatic conditions for the cultivation of this plant.

9302-1211 Laferriere, J.E. (Department of Botany, Washington State University, Pullman, WA 99164, USA) **Begonias as food and medicine.** *Economic Botany*, v. 46(1): p. 114-116, 1992 (40 ref, Eng).

Medicinal uses of roots and tubers of begonias have been reported. Use of *Begonia gracilis* roots as emetic, purgative and cathartic, *B. fuscarpa* sap for wounds, *B. humilis* for colds, cough and fever in Trinidad, *B. oxyloba* leaves as anthelmintic in East Africa, leaves of *B. oblongata* as an antidote for poisoning by *Dioscorea hispida* in Philippines has been enlisted.

9302-1212 Lal, B., Dube, U.P. (NBRI, Lucknow 226001, UP, India) **A survey of plant ethnomedicine of Amarkantak plateau in central India.** *Agricultural and Biological Research*, v. 8(1): p. 29-37, 1992 (18 ref, Eng).

Thirty eight plant species used as ethnomedicine for treating various ailments by different tribal communities living in and around the Amarkantak plateau of MP have been listed. Uses of 14 species reported here are hitherto unknown. Some of the interesting spp used by the tribals are *Adina cordifolia*, *Begonia picta*, *Cynoglossum lanceolatum*, *Hedychium coronarium*, *Cynoglossum lanceolatum*, *Kalanchoe pinnata*, *Tectaria macrodonata*, *Wendlandia exserta*. NSL, New Delhi.

9302-1213 Mishra, R., Billore, K.V., Yadav, B.B.L., Chaturvedi, D.D. (Regional Research Institute (Ayurveda), Jaipur 302002, Rajasthan, India) **Some ethno-medicinal plants-lore from Ajmer forest division (Rajasthan).**

Journal of Economic and Taxonomic Botany, v. 16(2): p. 421-424, 1992 (5 ref, Eng).

Local and botanical names of 19 plant species, parts used, mode of administration and medicinal uses have been described.

9302-1214 Negi, K.S., Pant, K.C. (National Bureau of Plant Genetic Resources (ICAR), Regional Station-Bhowali, Niglat 263132, Nainital, UP, India) **Less-known wild species of *Allium* L. from mountainous regions of India.** *Economic Botany*, v. 46(1): p. 112-114, 1992 (11 ref, Eng).

Habitat, occurrence, abundance, uses as medicine spices and condiments and systemic method collection and conservation of ten wild species of *Allium* collected from central, north-east and north-west Himalaya, have been presented.

9302-1215 Purohit, S.G.S. (State Ayurvedic College, Jabalpur, MP, India) **Use of herbs by tribals- Part 4. *Sachitra Ayurved***, v. 44(1): p. 19-26, 1991 (Eng).

Ethnomedical uses of plants by tribals in Madhya Pradesh have been discussed. Plants are discussed disease/use wise. Thirtyseven new plant names are recorded. Addresses of nine persons who gave that information are also provided.

9302-1216 Rai, M.K., Ojha, G.C. (Department of Botany, Danielson College, Chhindwara 480001, MP, India) **Ethnomedicinal studies of chhindwara district (MP): 1. plants used in stomach disorders.** *Indian Medicine*, v. 1(2): p. 1-5, 1989 (8 ref, Eng).

An ethnomedicinal survey was made in the tribal areas of Chhindwara district with special reference to Patalkot and Tamiya, where chiefly 'Bharia' and 'Gond' tribes reside. In the present paper, the authors have enumerated 30 plants used in various stomach disorders. The information is provided on botanical and vernacular names, family, part used, mode of administration and dose recommended.

9302-1217 Rai, M.K., Nonhare, B.P. (Department of Botany, Danielson College, Chhindwara 480001, MP, India) **Ethnomedicinal studies of Bicchua (Distt. Chhindwara) M.P. II.** *Indian Medicine*, v. 4(3): p. 7-10, 1992 (9 ref, Eng).

About 50 plants belonging to 32 families and 46 genera were recorded during the ethnomedicinal survey of chhindwara district conducted from 1988 to 1990. The plants have been enumerated in the alphabetical order of their botanical and local names along with family name and claims.

9302-1218 Rasoanaivo, P., Petitjean, A., Ratsimamanga-Urverg, S., Rakoto-Ratsimamanga, A. (Institut Malgache de Recherches Appliquees, B.P. 3833-101- Antananarivo, Madagascar) **Medicinal plants used to treat malaria in Madagascar.** *Journal of Ethnopharmacology*, v. 37(2): p. 117-127, 1992 (47 ref, Eng).

Two-hundred thirty-nine Madagascan medicinal plants have been retrieved from computerized ethnobotany information and identified as having antimalarial properties. Such a high rate percent of plants compared to those used empirically to treat other diseases reflects the importance and the complication of this major tropical disease in Madagascar.

9302-1219 Rispler-Chaim, V. (Department of Arabic, Tel-Aviv University, Tel-Aviv, Israel) **The Siwak: A medieval Islamic contribution to dental care.** *Journal of The Royal Asiatic Society*, v. 2(1): p. 13-20, 1992 (63 ref, Eng).

The 'siwak' or miswak' is often mentioned as a symbol for the emphasis given in medieval Islam to dental health care. Siwak or miswak are the names of the wooden instrument which has been used as a "tooth-stick", or as an early form of the toothbrush to clean the teeth and deodorize the mouth. They are mainly obtained from a number of plants, viz., *Salvadora persica*, *Glycyrrhiza glabra*, *Prunus mahaleb*, *Andropogon schoenanthus*, *Amyris gileadensis*, *Potentilla reptans*, *Pistacia bentiscus*. Among them *S. persica* is most popular because its anatomy contributes to its action as a toothbrush and chemical constituents viz., large amount of chlorine, trimethylamine, resin, silica, sulphur and vitamin C in the bark. A Swiss pharmaceutical company researched the nature of the siwak and concluded that it contained chemicals active against oral bacteria that killed pathogens which cause gingival inflammation and caries. Consequently, the company produced a toothpaste from the "siwak extract".

9302-1220 Samuelsson, G., Farah, M.H., Claeson, P., Hagos, M., Thulin, M., Hedberg, O., Warfa, A.M., Hassan, A.O., Elmi, A.B., Abdurahman, A.D. (Department of Pharmacognosy, Uppsala University, Uppsala Biomedical Centre, P.O. Box 579, S-751 23 Uppsala, Sweden) **Inventory of plants used in traditional medicine in Somalia. III. Plants of the families Lauraceae- papilionaceae.** *Journal of Ethnopharmacology*, v. 37(2): p. 93-112, 1992 (209 ref, Eng).

Thirty-five plants used by traditional healers in the central and southern parts of Somalia have been listed. The botanical name with synonyms, collection number, vernacular name, medicinal use, preparation of remedy and dosage have been given. Results of a literature survey are

also reported including medicinal use, substances isolated and pharmacological effects.

9302-1221 Sharma, P.C., Mehendale, V.V. (JN Ayurvedic Medicinal Plants Garden and Herbarium, Kothrud, Pune, Maharashtra, India) **Haridara (*Curcuma Longa* Linn).- a folk-lore remedy for malaria from Rajasthan. *Proceedings of National Workshop on Dravyaguna, Varanasi, UP, India*, February 17-19, 1992, p.6 (Eng).**

Use of *Curcuma longa* rhizomes by the village-folk of Hadauti region of Rajasthan for the treatment and prevention of malaria has reported.

9302-1222 Shrestha, T., Kopp, B., Bisset, N.G. (Pharmacognosy Research Laboratories, Chelsea Department of Pharmacy, King's College London, Manresa Road, London SW3 6LX, UK) **The Moraceae-based dart poisons of South America. Cardiac glycosides of *Maquira* and *Naucleopsis* species. *Journal of Ethnopharmacology*, v. 37(2): p. 129-143, 1992 (52 ref, Eng).**

The use of cardenolide-containing Moraceae in the dart poisons of South America has been reviewed. Dart-poisons prepared by the Choco Indians of western Colombia- called niaara or kieratchi- have probably been made from the latex of *Naucleopsis amara* and *N. glabra*. In Ecuador, the Colorado Indians used *N. chiguila*, while the Coaiquer Indians still derive a poison from the latex of *N. naga* and the Cayapa Indians occasionally make use of blowgun poison, hambí, which probably comes from a *Naucleopsis* species. The Kabori (Rio Uneixi Maku) Indians of north-western Brazil use *Maquira coriacea*. The Tikuna Indians of western Brazil included leaves and bark of *N. stipularis* in one of their poisons. The principal cardiac glycosides present in *Maquira* species are strophanthidin-based and the main ones occurring in *Naucleopsis* species are antiarigenin- as well as strophanthidin-based. The structures of two new glycosides, isolated from dart-poison samples, have been established as strophanthidin beta-D-glucomethylosideo-D-alloside and beta-D-digitoxosido-D-alloside. The former is a major component of pakurin, the crystalline glycoside mixture prepared by Santesson in 1928 from a Choco Indian poison.

9302-1223 Sikarwar, R.L.S. (Ethnobotany discipline, NBRI, Lucknow, 226001, UP, India) **Ethnomedicines of North Surguja forest division, Ambikapur, MP. *Aryavaidyan*, v. 6(2): p. 97-100, 1992 (17 ref, Eng).**

The paper reports 20 plants species of ethnomedicinal importance. These plant species are used by various tribal communities for curing certain diseases. in the north surguja forest division in MP. The plants include *Achyranthes aspera*, *Anogeissus latifolia*, *Atrocarpus heterophyl-*

lus, *Butea monosperma*, *Carissa spinarum*, *Cissampelos pareira*, *Cuscuta reflexa*, *Elephantopus scaber*, *Grewia hirsuta*, *Hemidesmus indicus*, *Lygodium flexuosum*, *Madhuca longifolia*, *Moringa oleifera*, *Phoenix acaulis*, *Pygmaeopremna herbaceae*, *Scoparia dulcis*, *Shorea robusta*, *Sida acuta*, *Terminalia alata* and *Vitex negundo*. NSL, New Delhi.

9302-1224 Singh, H., Maheshwari, J.K. (Ethnobotany Section, NBRI, Lucknow 2226001, UP, India) **Traditional remedies for snake-bite and scorpion sting among the Bhojas of Nainital district. *Aryavaidyan*, v. 6(2): p. 120-123, 1992 (8 ref, Eng).**

15 Medicinal plants used for the treatment of snake-bite and scorpion-sting by the Bhoja tribes have been given. The plants listed are: *Achyranthes aspera*, *Allium sativum*, *Azadirachta indica*, *Buchanania lauran*, *Calotropis gigantea*, *Ficus religiosa*, *Leucas cephalotes*, *Martynia annua*, *Morus indica*, *Nerium indicum*, *Oxalis corniculata*, *Pedilanthus tithymaloides*, *Rauwolfia serpentina*, *Scoparia dulcis* and *Siphanthes calva*. NSL, New Delhi.

9302-1225 Thakur, M.J., Mishra, I.N., Chaudhary, B.K. (PG Department of Botany, LN Mithila University, Darbhanga 846004, Bihar, India) **Ethno-botanical studies of some parts of Madhubani district (Bihar) (Part I). *Journal of Economic and Taxonomic Botany*, v. 16(2): p. 383-390, 1992 (Eng).**

Medicinal uses of thirty two plant species for various common ailments by the villages of Madhubani district of Bihar have been enumerated.

Analytical & Processing Techniques

9302-1226 Block, E., Naganathan, S., Putman, D., Shu-Hai Zhao (Department of Chemistry, State University of New York at Albany, New York 12222, USA) ***Allium* chemistry: HPLC analysis of thiosulfinates from onion, garlic, wild garlic (Ramsoms), leek, scallion, shallot, elephant (Great-Headed) garlic, chive, and Chinese chive. Uniquely high allyl to methyl ratios in some garlic samples. *Journal of Agricultural and Food Chemistry*, v. 40(12): p. 2418-2430, 1992 (72 ref, Eng).**

Room temperature vacuum distillates and extracts of onion *Allium cepa*, garlic *A. sativum*, wild garlic *Allium ursinum* leek *A. porrum*, scallion *Allium fistulosum*, shallot *Allium ascalonicum*, elephant (or great-headed) garlic *Allium ampeloprasum* var. *ampeloprasum* auct). chive *A. schoenoprasum* and Chinese chive *A. tuberosum* were analysed by HPLC and ¹H NMR using authentic samples of suspected thiosulfinate components to evaluate the methods. Eight different thiosulfinates were separated and

identified in each plant extract. It is concluded that gas chromatography, as typically performed with high injector and column temperatures, presents an erroneous picture of the composition of room temperature extracts from *Allium* species and that HPLC provides a reliable qualitative and semiquantitative measure of what is actually present. A simple vacuum distillation procedure facilitating qualitative analysis of *Allium* volatiles is described.

9302-1227 Brown, E.G., Newton, R.P. (Biochemistry Research Group, School of Biological Sciences, University College of Swansea, Singleton Park, Swansea SA2 8PP, UK) **Analytical procedures for cyclic nucleotides and their associated enzymes in plant tissues.** *Phytochemical Analysis*, v. 3(1): p. 1-13, 1992 (82 ref, Eng).

The extraction of cyclic nucleotides, their separation by HPLC and identification using the latest techniques is mass spectrometry is described, and the determination of these compounds by radio immunoassay and by saturation binding assay is examined. The validity and accuracy of the various methods in connection with plant analysis are evaluated.

9302-1228 Brunke, E.J., Hammerschmidt, F.H., Schamus, G. (Research Laboratories, Dragoco Gerberding & Co. Holzminden, BRD) **Flower scent of traditional medicinal plants** Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 732, 1992 (Eng).

The volatile constituents from the inflorescences of camomile, roman camomile, lavender-cotton, valerian and meadowsweet have been analyzed. Comparative analyses of the volatile composition of the essential oils obtained from fresh inflorescences by hydrodistillation with corresponding samples gained from unpicked inflorescences by using headspace techniques have been performed. The different isolation procedures predominantly delivered samples with significantly different qualitative and quantitative compositions. In general, the concentrates which were obtained by applying headspace techniques more clearly represented the sensory profile of the plant material used.

9302-1229 Dodman, D.M., Knight, D.W., Salan, U., Toplis, D. (Department of Chemistry, University Park Nottingham NG7 2RD, UK) **A quantitative method for the estimation of parthenolide and other sesquiterpene lactones containing alpha-methylene butyrolactone functions present in feverfew *Tanacetum parthenium*.** *Phytochemical Analysis*, v. 3(1): p. 26-31, 1992 (16 ref, Eng).

A sensitive and a quantitative assay of parthenolide and other sesquiterpene lactones containing an alpha-methylene butyrolactone residue which are present in *T. parthenium* has been developed. The reaction is based on Michael additions of alkylthiols containing a large chromophore to the latter function. The adducts are analysed accurately and with great sensitivity, using HPLC.

9302-1230 Drost-Karbowska, K., Szauder-Hajdrych, M., Kowaleswski, Z., Drzewiecka, M., Dziewialtowicz, H. (Katedra i Zaklad Farmakognozi, Akademia Medyczna im. K. Marcinkowskiego, ul. Sieroca 10, 61-771 Poznan, Polska) **Valuation of some pharmacopeal methods for quantitative determination of tropine alkaloids in *Folium* and *Tinctura belladonnae* and *extractum belladonnae siccum*.** *Herba Polonica*, v. 37(2): p. 71-77, 1991 (14 ref, Eng, Pol).

Valuation of some methods for quantitative determination of tropine alkaloids in *Folium* and *Tinctura belladonnae* and *Extractum belladonnae siccum* was carried out. For estimation the acid-base titration and spectrophotometric methods described in European pharmacopeas such as; FPIV, Ph. BSI, IV, DAB IX and Ph. Helv, VI were used. It may be concluded that the titration methods according to DAB IX for *Folium belladonnae* and spectrophotometric method according to DABIX for *Tinctura* and *Extractum belladonnae siccum* are more profitable than other methods. The titration method according to FPIV may be considered as the best one as it is simple and is less time consuming.

9302-1231 Haoru, Z., Shoushun, Z. (Department of Phytochemistry, China Pharmaceutical University, Nanjing, 210009, China) **Characterisation of acylated glycosides from *Euryale ferox* by NMR spectroscopy.** *Phytochemical Analysis*, v. 3(1): p. 38-41, 1992 (12 ref, Eng).

High resolution NMR spectroscopy has been used to identify the main acylated sterol glycosides isolated from *Euryale ferox* as 24-ethylcholest-5-en-3beta-O-beta-D-pyranoglucosyl palmitate and 24-ethylcholesta-5,25E-dien-3beta-O-beta-D pyranoglucosyl palmitate. The application of this technique to the identification of acylated sterol glycosides with in complex mixtures is described.

9302-1232 Hertog, M.G.L., Hollman, P.C.H., Venema, D.P. (DLO-State Institute for Quality Control of Agricultural Products (RIKILT-DLO), P.O.Box 230, NL-6700 AE Wageningen, The Netherlands) **Optimization of a quantitative HPLC determination of potentially anticarcinogenic flavonoids in vegetables and fruits.** *Journal of Agricultural and Food Chemistry*, v. 40(9): p. 1591-1598, 1992 (29 ref, Eng).

A rapid method based on RP-HPLC with UV detection is presented for the quantitative determination of five major flavonoid aglycons, viz. quercetin, kaempferol, myricetin, luteolin, and apigenin, in freeze-dried vegetables and fruits, after acid hydrolysis of the parent glycosides. Optimum hydrolysis conditions are presented for flavonol glucuronides, flavonol glucosides, and flavone glycosides. Identity of the flavonoids was confirmed with diode array. Repeatability of the method was good, with coefficients of variation of 2.5-3.1 percent for quercetin, 4.6-5.6 percent for kaempferol, 4.6 percent for myricetin, 3.3 percent for luteolin, and 2.8 percent for apigenin. Recoveries of the flavonoids quercetin, kaempferol, and myricetin ranged from 77 to 110 percent, and recoveries of the flavones apigenin and luteolin ranged from 99 to 106 percent.

9302-1233 Johnson, T.S., Ravishankar, G.A., Venkataraman, L.V. (Autotrophic Cell Culture Discipline, Central Food Technological Research Institute, Mysore 570013, Karnataka, India) **Separation of capsaicin from phenylpropanoid compounds by high-performance liquid chromatography to determine the biosynthetic status of cells and tissue of *Capsicum frutescens* Mill. in vivo and in vitro.** *Journal of Agricultural and Food Chemistry*, v. 40(12): p. 2461-2463, 1992 (7 ref, Eng).

A HPLC procedure was developed to separate vanillylamine, L-phenylalanine, caffeic acid, coumaric acid, ferulic acid, cinnamic acid, capsaicin acid, capsaicin, and dihydrocapsaicin. Using the HPLC method, concentrations of intermediates were determined in placenta, pericarp, cell cultures, immobilized cells, and immobilized placenta. The profile of intermediates showed higher capability of biotransformation in immobilized placenta over immobilized cells. Vanillylamine was not a limiting intermediate for capsaicin production. Three-week-old placenta separated from fruit had a higher quantity of capsaicin than did pericarp.

9302-1234 Joulain, D. (Research Laboratories, Robertest SA, Grasse, France) **Cryogenic vacuum trapping of scents from temperate and tropical flowers: facts and figures** (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 731, 1992 (Eng).

Results of trapping the volatile compounds emitted by flowers of jasmine, rose, osmanthus, quail and *Gardenia* have been presented. The results confirm the value of the method since it allows to detect previously unreported constituents in both the headspace extracts from these flowers. Some quantitative data dealing with model mixtures, using the cryogenic vacuum trapping methods, are also discussed.

9302-1235 Kaiser, R.A.J. (Givaudan-Roure Research Company Limited, Dubendorf, Schweiz) **On the scent of orchids** (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 730-731, 1992 (Eng).

Enormous diversity in the scent composition of orchid flowers may be considered as a reflection of equally extreme diversity in pollination principles found within the Orchid family. Experimental aspects of successful trapping and investigation of orchid scents have been discussed. Identification and synthesis of new or unusual products important for olfaction and also having senio-chemical interest have also been discussed.

9302-1236 Krzyzaniak, M., Segiet-kujawa, E. (Institute of Medicinal Plants, Libelta 27, 61-707 Poznan Poland) **Determination of gamma-linolenic acid in *Oenothera biennis* L.** *Herba Polonica*, v. 37(2): p. 57-62, 1991 (8 ref, Eng, Pol).

Oenothera biennis seeds were analysed for content of oil and its composition. Gamma-Linolenic acid was determined in analysed samples by GC/MS and capillary chromatography. Quantification was made by area internal standard and external standard methods. The obtained results indicated that only internal or external standard methods can represent the quality of *Oenothera* oil samples.

9302-1237 Menut, C., Lamaty, G., Malanda-Kiyabou, G., Bessiere, J.M. (Laboratoire de Chimie Organique Physique, Université de Montpellier II Sciences et Techniques du Languedoc 34095 Montpellier Cedex 05, France) **Aromatic plants of tropical central Africa VIII. Individual selection of eucalyptus for essential oil production in the Congo.** *Journal of Essential Oil Research*, v. 4(4): p. 427-429, 1992 (3 ref, Eng).

The chemical composition of the essential oils of *Eucalyptus urophylla*, *E. grandis* and a hybrid between the two species was examined by GC/MS. Although 43 compounds were characterised in the oils three types of *E. grandis* oil were identified. The hybrid oil was found to be an intermediate between the 1,8 cineole rich *E. urophylla* and the p-cymene/alpha-pinene-rich *E. grandis* based on the occurrence of characteristic components of both species.

9302-1238 Montedoro, G., Servili, M., Baldioli, M., Miniat, E. (Istituto di Industrie Agrarie, University of Perugia, Via S. Costanzo, 06100 Perugia, Italy) **Simple and hydrolyzable phenolic compounds in virgin olive oil. 2. Initial characterization of the hydrolyzable fraction.** *Journal of Agricultural and Food Chemistry*, v. 40(9): p. 1577-1580, 1992 (13 ref, Eng).

This paper reports the preliminary characterization of unknown phenolic compounds in virgin olive oil, separated by HPLC using hydrolytic, chromatographic and spectrophotometric techniques. It was possible to characterize oleuropeine aglycone and three hydrolyzable phenols containing (3,4-dihydroxyphenyl) ethanol or (p-hydroxyphenyl) ethanol.

9302-1239 Montedoro, G., Servili, M., Baldioli, M., Miniat, E. (Istituto di Industrie Agrarie, University of Perugia, Via S. Costanzo, 06100 Perugia, Italy) **Simple and hydrolyzable phenolic compounds in virgin olive oil. 1. Their extraction, separation, and quantitative and semi-quantitative evaluation by HPLC.** *Journal of Agricultural and Food Chemistry*, v. 40(9): p. 1571-1576, 1992 (26 ref, Eng).

Phenolic compounds have a fundamental importance in the nutritional and sensory characteristics of virgin olive oil. Problems regarding their qualitative and quantitative evaluation have not been completely solved; hence, in this paper the extractive and HPLC methods of analysis are examined and some modifications are presented. By means of these techniques, phenolic acid and four unknown compounds having phenolic behavior were separated from virgin olive oil. Four of them were correlated with total phenols evaluated by means of the Folin-Ciocalteu reagent, and two of them were correlated with olive oil autoxidation stability.

9302-1240 Nisperos-Carriedo, M., Baldwin, E.A., Moshonas, M.G., Shaw, P.E. (U.S. Citrus and Subtropical Products Laboratory, South Atlantic Area, Agricultural Research Service, U.S. Department of Agriculture, P.O. Box 1909, Winter Haven, Florida 33883-1909, USA) **Determination of volatile flavor components, sugars, and ascorbic, dehydroascorbic, and other organic acids in calamondin (*Citrus mitis* Blanco).** *Journal of Agricultural and Food Chemistry*, v. 40(12): p. 2464-2466, 1992 (23 ref, Eng).

The volatile flavor components of calamondin juice were determined by a headspace analysis technique. Twenty components including five aldehydes (acetaldehyde, decanal, nonanal, octanal, and perillaldehyde), two esters (geranyl acetate and neryl acetate), five alcohols (ethanol, linalool, methanol, terpineol-4-ol, and alpha-terpineol), and eight hydrocarbons (3-carene, limonene, myrcene, alpha-pinene, beta-pinene, gamma-terpinene, terpinolene, and valencene) were identified. The levels of these components, except for limonene and myrcene, were determined in the juice. The levels of individual sugars (glucose, fructose, and sucrose) and dehydroascorbic, ascorbic, citric, and malic acids were also given in this study.

9302-1241 Phak, L.C., Sporns, P. (Department of Food Science, University of Alberta, Edmonton, Alberta T6G 2P5, Canada) **Enzyme immunoassay for potato glycoalkaloids.** *Journal of Agricultural and Food Chemistry*, v. 40(12): p. 2533-2540, 1992 (49 ref, Eng).

New methods for the synthesis of solanidine protein conjugates were developed to improve the competitive enzyme immunoassays (EI) analysis of glycoalkaloids. *Limulus polyphemus* hemocyanin conjugates were used to immunize rabbits and produced high sera titers (greater than 10⁶; 10⁵ serum dilution could be used for assays). Bovine serum albumin coating conjugates were used in competitive enzyme immunoassay (EI) that detected and quantified the major solanidine glycoalkaloids (alpha-solanine and alpha-chaconine) in commercial *Solanum tuberosum* cultivars. Quantitation of these glycoalkaloids in several potato samples showed high correlation between EI and high-performance liquid chromatography (HPLC). EI was found to be more comprehensive than HPLC since demissidine glycoalkaloids were also quantified.

9302-1242 Surburg, H., Guentert, M., Harder, H. (Haarmann & Reimer, Holzminden, Federal Republic Germany) **Investigation of volatiles from flowers-analytical and olfactory aspects (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco).** *Parfumerie und Kosmetik*, v. 73(10): p. 730, 1992 (Eng).

Advantages and disadvantages of enrichment of volatile constituents from odorant flowers by steam distillation, dynamic and vacuum headspace sampling have been discussed. Investigations on lily of the valley, wax plant, rose, lilac and phlox have shown that vacuum headspace method yields concentrates with satisfactory olfactory properties.

9302-1243 Takagi, K., Toyada, M., Saito, Y., Mizuno, K., Shimizu, M., Satoh, S. (National Institute of Hygienic Sciences, 1-18-1, Kamiyoga, Setagaya-ku, Tokyo 158, Japan) **Determination of kinetin in callus of *Panax ginseng* by liquid chromatography.** *Journal of Chromatography, Biomedical Applications*, v. 628(1): p. 122-126, 1993 (15 ref, Eng).

A HPLC method was developed for the determination of kinetin levels in *Panax ginseng* dried callus, fresh callus, and culture media. Ground dried callus was suspended in borate buffer and extracted with an ester. The extract was subjected to HPLC after chromatography. Kinetin levels were determined by gradient elution and UV detection at 280 nm. The purification step could be eliminated with kinetin extracts from fresh callus and culture media. The recovery of kinetin from dried callus spiked at 5 micro g/g

was 72.0 percent and those from fresh callus and media spiked at 1.0 and 0.5 micro g/gm were 72.8 and 84.2 percent respectively. Kinetin was not detected in dried callus of *P.ginseng*. NSL, New Delhi.

9302-1244 Toyoda, T., Nohara, I., Sato, T. (Takasago International Corporation, Kamata, Ohtaku, Tokyo, Japan) **Headspace analysis of volatile compounds emitted from various citrus blossoms** (Paper presented at 203 National Meeting of American Chemical Society, 5-10 April 1992, San Francisco). *Parfumerie und Kosmetik*, v. 73(10): p. 730, 1992 (Eng).

The adsorption of volatile compounds onto various adsorbents is an effective tool for the analysis of volatiles in air. However, there are many difficulties in the desorption process. Thermally stable compounds must be handled frequently in the analysis of compounds emitted by plants. It is required to examine the entire array of compounds in complex mixtures. The efficiency of solvent extraction method for desorption has been compared to the thermal method using various citrus blossoms as examples.

9302-1245 Wojtasik, E., Strzelecka, H. (Katedra i Zaklad Farmakognozi AM, ul. Banacha 1, 02-097 Warszawa, Polska) **The progress in the investigation on the anthraquinone drugs. Part III. The comparison of the methods applied for determination of anthraquinone in CX Frangulae.** *Herba Polonica*, v. 37(2): p.63-70, 1991 (15 ref, Eng, Pol).

The comparison of the determination of anthraquinone derivatives in Cx Frangulae were done using methods described in some European pharmacopeas. The advantage of the method described by DAB IX were shown. This method was recommended in the V edition of the polish pharmacopoea.

Miscellaneous

9302-1246. (Environment and scarcity of herbal drugs (Editorial). *Sachitra Ayurved*, v. 44(2): p. 81-82, 1991 (Hin).

Effect of industrial pollution on the extinction of herbal drugs has been pointed out. Cultivation of medicinal plants in waste lands has been suggested in order to meet the requirements of authentic drugs.

9302-1247 Achi, O.K. (Department of Science Technology, Federal Polytechnic, P.M.B. 1037, Idah, Nigeria) **Microorganisms associated with natural fermentation of Prosopis africana seeds for the production of okpiye.** *Plant Foods for Human Nutrition*, v. 42(4): p. 297-304, 1992 (17 ref, Eng).

Okpiya is a food condiment prepared by the fermentation of *P.africana* seeds. The traditional process for the production and microbiological characteristics of the condiment have been investigated. Variations in the important microbial groups show that *Bacillus* spp were the most prevalent species and occurred until the end of fermentation. Temperature, pH and titratable acidity varied with time and were influenced by the metabolic activities of the microorganisms.

9302-1248 Basa, S.C., Srinivasulu, C., Mohanty, B. (Regional Research Laboratory, Bhubaneswar 751 013, India) **Terminalia chebula- Its utility in traditional medicine.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November 1992*, p. 98, (Eng).

T.chebula, well known crude drug in Ayurveda system of medicine is a constituent of Trifolia. The dried flesh of the Indian variety contains 30 percent (approx) of tannins. Study of the constituents of its fruit pulp has revealed the presence of both hydrolysable and nonhydrolysable tannins. Hydrolysis of the crude drug pulp furnished gallic acid which is a potential intermediate in the drug industry. A process has been developed for the commercial production of this important chemical. Details of the use of this chemical were discussed. (Abstr. No. IL 11C).

9302-1249 Broderick, J.J. (189 Woodland Avenue, River Edge, NJ 07661-2322, USA) **Reflections of a retired flavorist before he forgets- Lime.** *Perfumer & Flavorist*, v. 17(6): p. 39, 1992 (Eng).

Experiences in comparison of Oil Limes, distilled (produced by comminuting the whole lime and distilling of the altered essential oil) and Oil Lime, expressed have been described. Addition of phosphoric acid to washed lemon oil produced a product closer to the composition and flavor of Oil Limes, distilled.

9302-1250 Budzianowski, J., Pakulski, G., Robak, J. (Department of Pharmaceutical Botany, K.Marcinkowski Academy of Medicine, Wieniawskiego 1, 61-712 Poznan, Poland) **Studies on antioxidative activity of some C-glycosylflavones.** *Polish Journal of Pharmacology and Pharmacy*, v. 43(5): p. 395-401, 1991 (26 ref, Eng).

Ten flavonoid C-glycosyl derivatives: orientin, isoorientin, vitexin, isovitexin, isovitexin 7,2"-di-O-glucoside, isovitexin 7-O-galactoside-2"-O-glucoside two different 6,8-di-C-hexosylapigenins and two different 6-C-hexosyl-8-C-pentosylapigenins have been either produced from flavonoid fractions from *Adonis vernalis* and *Crataegus species* or isolated from *Stellaria media* to study their antioxidative properties. Only two compounds: orientin and isoorientin exhibited antioxidative activity.

9302-1251 Chattopadhyay, K. (Tollygunj, Calcutta 700053, WB, India) **Acne vulgaris & Rosaceae.** *Sachitra Ayurved*, v. 44(3): p. 204, 1991 (Eng, Hin).

Ayurvedic drugs useful in Acne have been described. Drugs taken orally as well as applied topically viz., *Pterocarpus santalinus*, *Melia azadirachta*, *Berberis aristata*, *Curcuma longa*, *Citrus* and *Heliotropium indicum* are said to cure acne.

9302-1252 Clark, G.S. (Commodity Services International, Inc., PO Box 1876, Easton MD 21601, USA) **An aroma chemical profile: Benzyl alcohol.** *Perfumer & Flavorist*, v. 17(6): p. 45-49, 1992 (10 ref, Eng).

Physico-chemical characteristics, natural sources, history, synthetic routes and producers. Capacity, supply, world consumption, imports, pricing, substitutes, analogues, and derivatives of benzyl alcohol have been reviewed.

9302-1253 Ghosal, S. (Department of Pharmaceutics, Institute of Technology, Banaras Hindu University, Varanasi 221005, India) **Research and applications of herbal drugs: Indian perspectives.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992* (Eng).

The current state of research and applications of herbal drugs, in India, is appraised. The future potential of this subject is projected. The setting and monitoring of standards of herbal drug preparations and formulations according to accepted tenets of modern science has been recommended. The outcome can be viewed as the emergence of an effective integrated system of medicine for the management and treatment of those diseases for which present-day unnatural (synthetic) medicines have no remedy.

9302-1254 Gupta, V.C., Hussain, S.J., Imam, S. (Central Research Institute for Unani Medicine, Hyderabad, India) **Conservation and cultivation of medicinal plants of Hyderabad Forest Division (AP).** *International Seminar-Traditional Medicine, Calcutta 7-9 November 1992*, p. 145, (Eng).

The vegetational wealth of medicinal plants is getting depleted on account of tree felling and biotic interference so that some species of medicinal plants are in the danger of being extinct. Most of the medicinal plants were transplanted in the mini-herbal garden of Central Research Institute for Unani Medicine, Hyderabad from the natural habitats of Andhra Pradesh forests and properly maintained. A complete phenological data was recorded for the medicinal plants collected from different habitats. The suitable location for cultivation for each plant species was discussed. (Abstr. No. P 8.31).

9302-1255 Hari, P.M. (Ayurved Shikshan Mandal Astang Ayurved Mahavidyalay, 2062, Sadashiv Peth, Pune 411 030, Maharashtra, India) **Promotion of health by Ayurveda & Yoga.** *Sachitra Ayurved*, v. 44(6): p. 434-439, 1991 (Eng).

Herbal drugs used as Rasayana for nervous system, cardiovascular system, health, promoters, liver, kidney, respiratory track, and endocrine system have been discussed. Role of yoga, astrology, gem therapy and mantras in health management has been described.

9302-1256 Hasan, C.M., Rashid, M.A., Jabbar, A., Muhammad, I. (Department of Pharmacy, University of Dhaka, Dhaka 1000, Bangladesh) **Chemical and biological studies on some medicinal plants of Bangladesh.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, (Eng).

The results of the chemical and biological examinations of twenty two medicinal plants of Bangladesh have been reviewed. The bioactivity directed isolation of active antimicrobial constituents and their structure determinations (i.e. using combined spectral data), together with the preliminary biological screening of some medicinal plants was discussed. (Abstr. No. p. 9.25).

9302-1257 Haumann, B.F.. **Antioxidants; Firms seeking products they can label as natural.** *INFORM*, v. 1(12): p. 1002-1013, 1990 (Eng).

Antioxidants are used to protect fats and oils from developing rancidity or from decomposing during storage. An account of the historical background, importance, synthetic and natural compounds, sources of natural antioxidants, their current applications etc. has been given.

9302-1258 Huntley, B., Huntley, J.P. (Environmental Research Centre, University of Durham, Department of Biological Sciences, Durham, UK) **Willows in prehistory.** *Proceedings of The Royal Society of Edinburgh*, v. 98B: p. 149-154, 1992 (30 ref, Eng).

Palynological and macrofossil evidence of the former presence and abundance of *Salix* species in the British Isles is discussed. The occurrence of *Salix* remains in archeological excavations is reviewed. It is concluded that, whereas *Salix* species of shrub and dwarf-shrub habits were abundant during the glacial and late-glacial periods, tall-shrub and tree species have been of only local occurrence during the post-glacial period. The wood of these species has been used opportunistically by humans since at least the Neolithic period.

9302-1259 Hussain, M.M. (Hamdard Laboratories (WAQF), Bangladesh, 123/3, Tejkunipara, Tejgapon,

Dhaka, Bangladesh) **Strategies for the production and evaluation of herbal medicines.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992* (Eng).

In this paper an attempt has been made to discuss the different aspects of developing and evaluating medicines from natural herbs and drug plants. Efforts have also been made to highlight the various strategies to be undertaken in order to produce efficacious and quality herbal medicines for mitigation and prevention of human ailments (Abstr. No. 8.11).

9302-1260 Kurian, M.K., Nair, G.V., Pillai, C.R.S. (Department of Dravyaguna, Government Ayurvedic College, Trivandrum, Kerala, India) **Importance of Ayurvedic drugs in modern era.** *Proceedings of the National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992*, p.8 (Eng).

Efficacy and importance of Ayurvedic drugs in the present era have been discussed.

9302-1261 Lahankar, M.A. (Department of Surgery, R.A Poddar Vaidyak Mahavidyalaya, Worli, Bombay 400018, Maharashtra, India) (**How to clean teeth with dental sticks**). *Sachitra Ayurved*, v. 44(6): p. 413-414, 1991 (Hin).

Use of dental sticks from ten plants viz., *Areca* (Khadir), *Pongamia* (Karanj), *Terminalia arjuna* (Arjuna), *Madhuca* (Mahua), *Ficus* (Vat), *Azadirachta indica* (Neem), *Acacia arabica* (Babool), *Mimusops* (Bakul), *Zizyphus* (Ber), and *Calotropis* (Aak) in different diseases of teeth and mouth has been described.

9302-1262 Mishra, S.K. (Ministry of Health and Family Welfare, Govt. of India, New Delhi-110011, India) **Role of Ayurved and traditional medicine for achieving "Health for all by 2000 AD."** *Sachitra Ayurved*, v. 45(5): p. 367-376, 1992 (Eng).

Emphasis has been made on the popularisation of use of medicinal plants, national guidelines for prescription of herbal drugs in rural hospitals and training in extension services. Recommendations by WHO for utilisation of traditional medicines for primary health care and constraints identified in regard to their use have been discussed.

9302-1263 Mosciano, G., Fasano, M., Cassidy, J., Connelly, K., Mazeiko, P., Montenegro, A., Michalski, J., Sadural, S. (Bush Boake Allen, 7 Mercedes Drive, Montvale, NJ 07645, USA) **Organoleptic characteristics of flavor materials.** *Perfumer & Flavorist*, v. 17(6): p. 41-43, 1992 (Eng).

Source, FEMA, CAS, synonyms, natural occurrence, odour characteristics, taste characteristics, and suggested applications of 20 flavor materials including cedarwood

terpenes, cocoa oleoresin (natural), linalool natural ex Ho oil, *Mentha piperita* oil (rectified) and verbena absolute have been described.

9302-1264 Mukherji, C., Mukherji, S. (Physiology & Biochemistry Lab, Department of Botany, Calcutta University, 35, Ballygunge Circular Road, Calcutta 700019, India) **Quality impairment of traditional medicinal plants by metal pollutants and prospects of their improvement.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November*, p. 126-127, 1992 (Eng).

Cadmium acts as a serious environmental and industrial pollutant. Toxicological properties of cadmium include adverse effects at the cellular and biochemical levels. Metal binding proteins like metallothioneine are produced in higher plants. Similarly, phytochelatins may be engaged in detoxification and homeostasis of Cd pollution through metalthiolate formation. Following amplification of the gene for metallothioneine like protein, it is hoped that new transgenic plants with medicinal value could be produced which will be resistant to heavy metal toxicity. (Abstr. No. P.8.07).

9302-1265 Negbi, M. (Department of Agricultural Botany, The Faculty of Agriculture, The Hebrew University of Jerusalem, PO Box 12, Rehovot 76100, Israel) **A sweetmeat plant, a perfume plant and their weedy relatives: A chapter in the history of *Cyperus esculentus* L. and *C. Rotundus* L..** *Economic Botany*, v. 46(1): p. 64-71, 1992 (54 ref, Eng).

Use of *C. esculentus* and *C. rotundus* tubers in the ancient eastern Mediterranean region as food, perfume and medicine has been reported. *Cyperus* perfumes are also mentioned in Mycenaean documents. Domestication of *C. esculentus* and the evolution of both nutsedges towards weeds have been discussed.

9302-1266 Pandey, G. (AU, CCRAS, Tarikhet 263663, Ranikhet, UP, India) **Procurement of Himalayan crude drugs for Ayurvedic pharmacy.** *Sachitra Ayurved*, v. 44(3): p. 198-201, 1991 (Eng).

Problems associated with the procurement of authentic herbal drugs required for a pharmacy have been discussed. Approach to collect, preserve and conserve the botanical drugs from Himalaya have been suggested.

9302-1267 Patwardhan, B., Hooper, M. (Interdisciplinary School of Health Sciences, University of Poona, Pune-7, Maharashtra, India) **Medicinal plants in future drug development.** *Biologia indica*, v. 2(1&2): p. 1-3, 1991 (Recd. 1992; nil, Eng).

This review reports the bright future of medicinal plants as a starting material for various drugs. Especially, for the development of new drugs for the treatment of cancer, cardiovascular disease, chronic rheumatism, viral infections in particular HIV-1 (AIDS Virus). Herbal and herbomineral preparations, from which Ayurvedic medicines are made are useful for treatment of various diseases. Since, the important aspect of plant medicines is the presence of compounds which modulate, and in some cases are synergistic with, the compounds possessing the major biological activity. NSL, New Delhi.

9302-1268 Rehman, M.K.(Department of Dravyaguna, Podar Medical College, Bombay, Maharashtra, India) **Weeds of the Marathwada and its Ayurvedic medicinal value.** *Proceedings of National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992*, p.6 (Eng).

Medicinal value of some weeds growing alongwith regular crops in Marathwada has been reported.

9302-1269 Rehman, M.K. , Missal, S.s.(R.A.Poddar Medical College, Worli, Bombay 400 018, India) **A study of selected weeds of Bombay mentioned in Bhavaparkas nighantu.** *International Seminar-Traditional Medicine, Calcutta 7-9 November, p. 106, 1992* (Eng).

Vegetation of Bombay is rich in weeds. There are different types of weeds in the different parts of Bombay. The weeds from the roadside, railway side are quite diferent from those of the waste place, public gaeden and playground. No doubt the weeds generally reduce the crops in agricultural field but they have certain medicinal value. The object of presenting this paper is to show that some selected weeds which occur in different places of Bombay have some medicinal value, as mentioned in Bhavaparkash nighantu. (Abst. No. P 7.10).

9302-1270 Sharma, J.N.(Department of Pharmacology, AIIMS, New Delhi 110029, India) **Computer applications in the research and development of Ayurveda and traditional medicine.** *Proc. 24th Indian Pharmacol.Soc.Conference, Ahmedabad, Gujarat, India, Dec. 29-31, 1991*, p. A12, (Eng).

Application of Trilingual Expert System (English, Sanskrit and Hindi) for subsequent utilisation for the research and development of therapeutically effective medicaments/remedies and also for the teaching/learning of Ayurveda in the language and terminology of modern advances and technology, has been discussed.

9302-1271 Shin, K.H., Lee, E.B., Song, Y.J. , Kim, O.J.(Natural Products Research Institute, Seoul National University, Seoul 110-460, Korea) **Deodorizing responses**

of the steam distillate from some medicinal plants. *Korean Journal of Pharmacognosy*, v. 23(3): p. 153-157 , 1992 (4 ref, Eng, Kor).

The deodorizing responses of the steam distillate from some medicinal plants on three representative malodors were evaluated by estimating the best estimate threshold (BET) of odor responses. With a single spray of steam distillate the BETs of malodors such as ammonia, acetic acid, and ethyl acetate were found to increase 4.11, 32.6 and 13.1 fold, respectively, which indicated distillate possessed a potent deodorizing activity. The deodorizing potency was also demonstrated to be as high as and even higher than those of the commercial deodorizing agents.

9302-1272 Singh, R.H.(Department of Kayachikitsa Institute of Medical Sciences, Banaras Hindu Univeristy, Varanasi 221005, India) **A scientific study on Medhya Rasayana drugs.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 90-91, (Eng).

The Medhya Rasayana drugs viz., Sankhapushpi, Mandukaparni and similar others are specific nervine tonics and micronutrients for brain. They afford varying degree of antistress and adaptogenic effect. They reduce anxiety, promote memory and intelligence and afford a wide spectrum of other beneficial effects. The present study contains clinical and experimental observations on the category of plant drugs including an ecological assessment in terms of seasonal variation in drug activity and identification of the part of medicinal value. The scope of generalisation of these observations is discussed. (Abstr. No. IL5C).

9302-1273 Sonare, C.B.(B.S.Ayurvedic College, Savantwarhi, Maharashtra, India) **(Karamrang (Kamarak)).** *Sachitra Ayurved*, v.44(1): p. 27-30, 1991 (13 ref, Eng).

Vernacular names, description of the plant, availability, chemical constituents and therapeutic uses of *Averrhoa carambole* have been briefly discussed.

9302-1274 Sotheeswaran, S.(University of the South Pacific, Suva, Fiji) **Herbal Medicine: The Scientific evidence.** *Journal of Chemical Education*, v. 69(6): p. 444-446 , 1992 (16 ref, Eng).

Herbal medicine uses herbal extracts in the treatment of human illnesses. This system of medicine is popular, even today, among the indigenous peoples of Africa, America, Asia, and the South Pacific. Even Westerners who usually have recourse to modern western medicine are not stranger to herbal medicine. Less well-known information on the efficacy of some herbs, viz., *Allium sativum*, *A. cepa*, *Ephedra sinica*, *Plumbago zeylanica*, *Ageratum con-*

yzoides, *Ocimum gratissimum* and *Montanoa tomentosa* M.Idris, New Delhi.

9302-1275 Sukh Dev (Department of Chemistry, Indian Institute of Technology, New Delhi, India) **Ayurveda and modern drug development.** *International Seminar-Traditional Medicine, Calcutta, 7-9 November, 1992*, p. 44-45, (Eng).

Modern use of plant drugs is linked with some folklore or a traditional system of medicine. Work carried out on the evaluation of four plants *Asparagus racemosus*, *Commiphora mukul*, *Withania somnifera* and *Terminalia bellerica* was presented. In all these cases important ayurvedic claims of these plants stand substantiated. Whereas, the work on the first two plants was carried out by utilising the more traditional pharmacological techniques, the last two plants have been probed by receptor binding assays. Work on *C.mukul*, which was carried out in collaboration with CDRI, Lucknow, finally terminated in a modern drug for hypercholesterolemia, and the drug is being manufactured and marketed in India. (Abstr. No. PL 2).

9302-1276 Temrakar, B.P. (Tribal Health care Research Project, Imphal, Manipur, India) **Importance of Ayurvedic dravya in present era.** *Proceedings of National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992*, p.6 (Eng).

Plantations and safety location of trees related with primary health care have been discussed.

9302-1277 Tiwari, S. (Tiwari Niwas, tallital, nanital 263002, UP, India) **Information of Churnas in the Indian system of medicine.** *Sachitra Ayurved*, v. 44(2): p. 129-131, 1991 (Eng).

Information on important powdered crude drugs (Churnas) has been tabulated. Name of the drug, textural reference, dose prescribed and therapeutic doses have been described.

9302-1278 Tomar, G.S., Tomar, N. (LBSS State Ayurvedic College & Hospital, Handia, Allahabad, UP, India) **Vitalization of Ayurvedic drugs in present perspectives.** *Proceedings of National Workshop on Dravyaguna, Varanasi, UP, India, February 17-19, 1992*, p.7 (Eng).

Therapeutic efficacy, assimilation and need for the revitalization of Ayurvedic drugs have been discussed.

9302-1279 Valenzuela, A., Nieto, S., Cassels, B.K., Speisky, H. (Unidad de Bioquímica Farmacológica y Lipidas, INTA, Universidad de Chile, Santiago, Chile) **Inhibitory effect of boldine on fish oil oxidation.** *Journal of*

American Oil Chemists' Society, v. 68(12): p. 935-937, 1991 (15 ref, Eng).

Antioxidative effect of boldine an alkaloid extracted from the leaves and bark of baldo (*Peumus boldus*) was assayed on the spontaneous and on the metal-induced oxidation of fish oil. The inhibitory effect of boldine was comparable to those of alpha tocopherol, quercetin, and to butylated-hydroxytoluene and -hydroxy anisole. Additive effects were observed when mixture of boldine and quercetin or alpha tocopherol were assayed. Boldine has the potential of being used as a novel natural antioxidant for fish oil.

9302-1280 Wu, H., Calvarano, M., Giacomo, D.A. (Citrus Research Institute of Chinese Academy, Beijing, China) **Improvements of extracting Naringin from grapefruit peel.** *Essenze Derivati Agrumari*, v. 59(3): p. 187-191, 1991 (Recd. 1992, 4 ref, Eng).

Five treatments for extracting naringin, a bitter principle from grapefruit peel were compared. Lime treat had the highest recovery rate with low purity value. Whereas, hot water with yeast treatment appeared to be better for extracting naringin with high purity rate.

9302-1281 Wu, Z., Weeks, W.W., Long, R.C. (Department of Crop Science, North Carolina State University, Raleigh, North Carolina 27695-7620, USA) **Contribution of neutral volatiles to flavor intensity of tobacco during smoking.** *Journal of Agricultural and Food Chemistry*, v. 40(10): p. 1917-1921, 1992 (16 ref, Eng).

Gas chromatographic (GC) profiles of tobacco volatiles and analyses of reducing sugars and total alkaloids as well as subjective smoking evaluations were used to test different tobaccos for tobacco flavor and aroma. Twenty of the major peaks from the GC profiles and subjective smoking scores were analyzed by multiple linear regression. Seven compounds of 20 were included in the regression model that was significant with correlation coefficient $R^2=0.702$. Total volatile data for the 20 peaks and the subjective scores were transformed to comparable scales and analyzed by linear regression. The regression model was significant with a low correlation coefficient of $R^2=0.300$.

New Publications

9302-1282 (Directorate of Cinchona & Other Medicinal Plants, Government of West Bengal, Mungpoo, Darjeeling India) **Research Technical Bulletin.** *Research Technical Bulletin*, No. 16, March, 1992 (Eng).

This technical bulletin reports data obtained in physiological, agronomical, horticultural, pathological,

biochemical tissue culture and analytical aspects of *Cinchona*, *Dioscorea* spp., *Ipecae*, *Costus* and *Cymbopogon*. Results of eleven studies have been included.

9302-1283 Atta-ur-Rahman(Elsevier, Amsterdam) **Studies in natural products chemistry vol. 9. Structure and Chemistry (Part B)** (1991, XVIII+714pp; 17X24.5 cms; ISBN 0-444-89165-X, 220 dollars). *Journal of Medicinal Chemistry*, v. 35(23): p. 4506, 1992 (Eng).

The book presents an overview of the present state of natural products around the world upto date applications of X-ray techniques, NMR and mass spectroscopy to structure elucidation have been dealt with. Other topics include corticoid hormones, chalcogens, antibiotics, phenolic lipids, prostaglandins, and vitamin B12. Among many fine presentations, the chapters describing three simple and in expensive bioassays for detection of pharmacological activity in natural products or their derivatives are included.

9302-1284 Brossi, A., Cordell, G.A.(Academic Press, San Diego, CA, USA) **The Alkaloids, Vol. 41**, (1992, ix+252 pp. 15.5 x 23 cms. ISBN 0-471-02233-0; 85 dollars). *Journal of Medicinal Chemistry*, v. 35(24): p. 4648, 1992 (Eng).

This volume deals with four chapters, viz., alkaloids of plants of Thailand with main emphasis on isoquinoline and indole related alkaloids, also, miscellaneous alkaloids of various structural types. The second chapter covers marine natural products discovered since, 1985. Third chapter updates colchicum alkaloids and the final chapter deals with veratrum alkaloids.

9302-1285 Bruhn, J.G. (Ed.)(Apotekarsocietetens forlag AB, Stockholm, Sweden) **Natural Medicines, 1990, 216 pp..** *Journal of Ethnopharmacology*, v. 37(2): p. 175, 1992 (Eng, Swe).

The book containing thirteen chapters contains modern and historical material. The chapters cover folk medicines, ethnopharmacological standardisation and methods, Indian medicine in the Amazon, Traditional medicine and modern medical research in China and development of new medicines from natural sources.

9302-1286 Rizk, A.M., Al-Nowaihi, A.S.(Alden Press Oxford (on behalf of Qatar University, Scientific and Applied Research Centre)) **The phytochemistry of the Horticultural Plants of Qatar** (1989, 285p, ISBN 0-900040-30-0). *Polish Journal of Pharmacology and Pharmacy*, v. 43(6): p. 529, 1991 (Eng).

In addition to a few vaild shrubs and trees, the horticultural plants cultivated in Qatar and many other countries have been described. About 120 plants belonging

to 45 different families have been collected and identified. The book deals with chemical constituents of these plants as well as their medicinal and economical uses. A bibliography of 2300 titles covering the peroid upto 1986, botanical index and subject index have been given. Many summary tables, chemical formulae and high quality photographs have also been provided.

9302-1287 Saklani, A.(National Botanical Research Institute, Lucknow 226001, India) **Cross-cultural Ethnobotanical Studies Among the Tribes of North eastern India. Ph.D. Thesis, HNB University of Gharwal**, 1992 (Eng).

Ethnobotanical information has been provided on 1296 plant species, belonging to 726 genera and 203 families. Fifty-one plant plant have been added to the ethnobotanical data already known. About 57 prescriptions based on 33 species for medicine are less known. The thesis includes a map of study area, 8 tables, 48 photographs and 30 figures.

Patents

9302-1288 Atsusane, T.(Kaneobo Limited, Japan) **Clove oil or dehydrodieugenol for controlling oxygen in the human body**, Japan Kokai Tokkyo Koho JP 03,227,938 (Cl. A61 K35/78) 1991, 6 PP. (Eng).

Active oxygen, that may be responsible for various ailments of human system such as inflammation, cancer, ischemia, may be controlled by administering clove oil or its component, dehydrodieugenol. Thus OH radical inhibition has been demonstrated by adding the compound to a test system described (in Anal.biochem., 165, 1987, 215-219). IARI, New Delhi.

9302-1289 Caizong, W.. **Manufacture of capsules for epilepsy therapy**, Faming Zhuanli Shenqing Gongkai Shuomingshu CN 87,102,557 (Cl. A61 K35/78), 1988, 4 PP. (Chi, Eng).

Capsules for epilepsy treatment can be obtained from medicinal plants viz., *Curcuma aromatica* bulos, *Zingiber officinale*, rhizome and *Liquidambar orientalis* oil along with borneol and alum. The materials are soaked, powdered and dissolved in suitable medium and pressed into capsules for epilepsy treatment. The ratio of *C.aromatica*, *Z.officinale* alum, *L.orientalis* oil and borneol are mixed at the ratio of 1-2:0.6-1:0.2-0.4:0.1-0.03. IARI, New Delhi.

9302-1290 Carl, T.R.(Dermatologica Research Corporation) **Treatment of skin diseases with artemisinin and its derivatives**. Can.Pat Appl. CA 2,003,177 (CIA61K31/00), 1991, 14pp. (Eng).

Psoriasis and other skin diseases are treated with topical and oral administration of artemisinin, dihydroartemisinin and its derivatives. Viral diseases and hemorrhoids are also treated with topical administration of these compounds. The patients suffering from plaque psoriasis upon treatment with the ointment containing 1 percent artemisinin exhibited superior activity as compared to controls containing corticosteroids. IARI, New Delhi.

9302-1291 Cheng, T.T.. Agglutinins and lectins for oral administration for the inhibition of neoplasm metastasis formation, Ger.Offen. DE 3,835,186 (Cl.A61K37/02), 1989, 5pp. (Ger, Eng).

Oral pharmaceuticals for suppressing post operative tumor metastases in mammals were reported to contain lectins selected from abrisins. Agglutinins were isolated from abrisins. Agglutinin was isolated from the seeds of *Abrus precatorius*. Abrus agglutinins were administered to mice s.c. at the dose level of 200mg for four days. The mice were inoculated with Sarcoma 180-cells and it was observed that 50 percent of the mice were free from metastases. 33 percent had first degree metastases and 17 percent had third degree metastases after the lapse of 3 weeks. Oral administration of the agglutinins appear to show same effect as s.c. administration. The lectins may be administered alone or in combination with other chemotherapeutic agents, these pharmaceuticals may also used for the treatment of AIDS and hepatitis. IARI, New Delhi.

9302-1292 Elie, M.R.. Pharmaceuticals for treatment of rheumatism and inflammatory states containing Harpagophytum, selenium and zinc, Fr.Demande Fr. 2,614,791 (Cl.A61.K35/78), 1988, 5pp. (Eng, Chi).

A pharmaceutical for the treatment of rheumatism and inflammatory states comprises the plant Harpagophytum containing 4 percent harpagoside along with Se or Zn with an appropriate support materials such as yeast. IARI, New Delhi.

9302-1293 Hara, Y., Miwa, H.(Mitsui Norin Company Limited) Catechins from tea as L-amylase inhibitors, Eur.Pat.Appl. EP 423,419 (Cl A61 K37/64) 1991, 9 PP. (Eng).

Polyphenols from tea inhibit the activity of alpha-amylase and are reported to be effective in controlling food intake. A polyphenon 100 (crude mixture of catechins) when administered with carbohydrate diet to rats, increase in the amount of feces discharge due to the presence of catechins was observed. It appears that the catechins act in a similar manner as that of dietary fibres in promoting the ejection of substances of the intestines by decreasing the absorption of the carbohydrates. IARI, New Delhi.

9302-1294 Ichiro, K., Michio, F.(Shoei Chemical Industry Company Limited, Japan) (Jap, Eng).

A topical medication which can control skin disorders around the anus in patients suffering from hemorrhoid has been prepared from *L.cylindrica* extracts. Saponins (R=glucosyl or glucose-rhamnosyl, R1=Me, CH2OH, CHO,; R2=H, beta-D-glucopyranoside; R3=H, OH; R4=H,OH in the given structural formula) were also made use of to prepare the medication. Normally, the *L.cylindrica* was defatted, followed by extraction with warm lower alcohol and concentrated by gentle warming. The residue was dissolved in methanol and subjected to chromatography to obtain the required product. IARI, NEW Delhi.

9302-1295 Isao, K.(Eisai Company Limited, Japan) Merremosides for treatment of diabetes and tuberculosis hemotysis, Japan Kokai Tokkyo Koho JP 01,139,595 (Cl.C07H13/06), 1989, 6pp. (Jap, Eng).

Merremosides (R1=COCHMeEt., beta-D-glucopyranosyl; R2=COCHMe2, H, COCHMeEt in the given structural formula) are reported to be useful in the treatment of diabetes and tuberculous hemoptysis. Merremosides were isolated from the methanol extracts of the roots of *Merremia mammosa* and the extracts on chromatography and HPLC yielded 63 mg (in 10 kg root) merremoside C (R1=COCH MeEt, R2=H) in the given structural formula), IARI, New Delhi.

9302-1296 Mamoru, S., Takashi, S., Hideko, S., Yokinobu, I. (Tsumura and Company, Japan) Gomisin H, J, N and G from Schisandra fruits and their uses as calcium antagonists with antihypotensive activity, Japan Kokai Tokkyo Koho JP 01,42,421 (Cl A61 K31/09) 1989, 7 PP. (Jap, Eng).

Gomisin H,J,N and G were isolated from *Schisandra* fruits. Gomisin H-G were utilised in the formulation of pharmaceuticals as calcium antagonists for hypotension. Gomisin H-G in vitro inhibited Ca²⁺ induced contractility of dogs mesentery artery with IC₅₀ values of 5.3x10⁻⁴, 1.2x10⁻⁵; 1.1x10⁻⁴ and 1.0x10⁻⁴ respectively. Gomisin relaxed in vitro relaxed the prostaglandin F2alpha-induced contractility of dog's mesentery artery by about 50 percent at 4:1, 1.7, 6.0 and 2.1x10⁻⁵ respectively. IARI, New Delhi.

9302-1297 Pengyong, L.(Drngchuang Committee of Science and Technology) Eranthis hyemalis alkaloid extract containing toothpaste for gingivitis and periodontitis control, Faming Zhunali Shenqing Gongkai Shuomingshu CN 86,100,903 (Cl. A61 K7/16), 1987, 5 PP. (Chi, Eng).

A toothpaste is prepared which contain an alkaloid hydrochloride isolated from the herb *Eranthis hyemalis*

along with other ingredients. The tooth paste is very effective in controlling gingivitis. IARI, New Delhi.

9302-1298 Rudolf, S., Gyorgy, S.. **Home made menthol-containing drug**, Hung.Teljes HU 44, 705 (Cl. A61 K35/78), 1988, 4 PP. (Hun, Eng).

A home made drug has been described for the treatment of rheumatism. The drug comprises mainly menthol, thymol, camphor, peppermint oil, plantain extract, rest-harrow root extract, thyme flower extract. Salicylic acid is added to obtain the drug in the form of ointment or suspension as the case may be. IARI, New Delhi.

9302-1299 Takeshi, M.(Daicel Chemical Industries Limited) **Isolation of flavone glycosides from Ginkgo biloba**, Japan Kokai Tokkyo Koho JP 62,292,794 (Cl. C07 H17/07) 1987, 4 PP. (Jap, Eng).

Flavone glycosides (R=H or OH in the given structural formula) were isolated from the leaves of *G.biloba*, by means of chromatography and CCD techniques. Methanol extracts of the leaves were employed and subjected to CCD using CHCl₃-MeOH-H₂O (7:13:8) solvent system. In this way a glycoside fractions (R=H) containing 110 mg and 148 mg(R=OH) were isolated. IARI, New Delhi.

9302-1300 Toru, K., Shigetoshi, K., Hisao, Y. , Akiko, M., Katsutoshi, K.T.(Nippon Kayaku Company Limited, Japan) **Woodforticosin as inhibitor of topoisomerase and neoplasm**, Japan Kokai Tokkyo Koho, JP 03,123,793 (Cl.C07H13/08), 1991, 6 pp. (Eng, Jap).

Dried leaves of *Woodfordia fruticosa* was extracted with organic solvent and subjected to series of column

chromatography and yeilded *Woodforticosin*. The compound is useful as an inhibitor of topoisomerase II and as neoplasm inhibitors. The inhibitory activity of the compound against topoisomerase II and as an antitumor activity were demonstrated by making use of suitable animal model system. IARI, New Delhi.

9302-1301 Yasuhior, K., Takashi, S., Hideko, S., Masaki, Y. (Tsumura and Compay, Japan) **Anti allergy agents containing dibenzo-cyclo octadiene derivatives**, Japan Kokai Tokkyo Koho JP 01,128 922 (Cl A61K31/36),1989, 5pp.. (Jap, Eng).

Anti allergy agents contain dibenzo cyclo-octadiene derivative as an active ingredient. The active compound can be isolated from *Schizadra chinesis* by extracting the plant material with petroleum ether, in 0.22percent yield. The compound when adminstered at the dose level of 100mg/kg P.O inhibited 53.3 percent passive cutaneous anaphylaxis in rats. Tablets were formulated along with other ingredients. IARI, New Delhi.

9302-1302 Zhengsa, T.. **Pharmaceuticals containing berberine and ginseng saponins for eczema treatment** Farming Zhunali Shenging Gongkai Shoumingshu,CN 87,102,282 (ClA61 K35/78), 1988, 5pp. (Eng, Chi).

Pharmaceuticals for eczema treatment contain saponins isolated from ginseng and berberine of *Coptis*. Ginseng and berberine saponins were mixed at the ratio of 1:2 along with petroleum to give an ointment used for eczema therapy. IARI, New Delhi.

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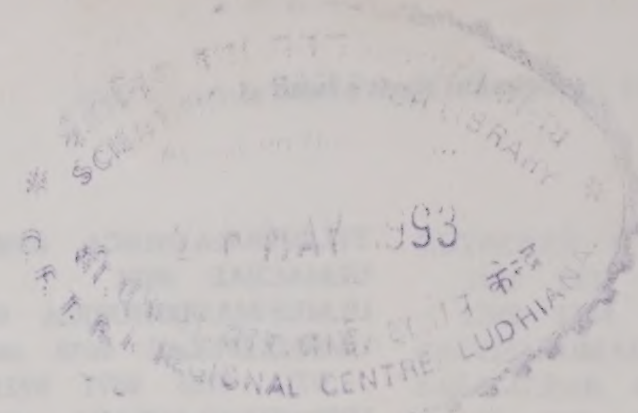
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PODOCARPACEAE	0994	1240	1244	1249	1251	1280			
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POGOSTEMON CABLIN	0696	SALICACEAE	0679	0680	0691	1258			
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POLYGALACEAE	0871	SALIX CAPREA	0691						
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PRUNUS AVIUM	0751	0930	SANGUISORBA OFFICINALIS	0890					
PRUNUS CERASUS	0751	SANTALACEAE	0700	0877					
PRUNUS MAHALEB	1219	SANTALINA	1228						
PRUNUS SPINOSA	1076	SANTALUM ALBUM	0700	0877					
PSEUDOBERSAMA MOSSAMBICENSIS	1065	SANTOLINA CHAMAECYPARISSUS	1029	1096					
PSIDIUM GUAJAVA	0895	SAPINDACEAE	0771	0839	0869	0946			
PSORALEA CORYLIFOLIA	0923	1220	SAPINDUS TRIFOLIATUS	0771					
PSOROTHAMNUS FREMONTII	1184	SAPIUM BACCATUM	1015						
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PULICARIA GLUTINOSA	1121	SAPONARIA VACCA RIA	1116						
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RANUNCULACEAE	0721	0837	SAXIFRAGACEAE	0846					
1154	1059	1210	1250						
RANUNCULACEAE(PATENT)	1297	1302	SCHISANDRA CHINENSIS	0727	0871				
RANUNCULUS FICARIA	0675	SCHISANDRA CHINENSIS(PATENT)	1296						
RANUNCULUS JAPONICUS	0837	SCHISANDRA SPP	0887	1103					
RANUNCULUS SCELERATUS	0993	SCHISANDRACEAE	0887	0965	1103				
RANUNCULACEAE	993	SCHIZANDRA CHINENSIS(PATENT)	1301						
RAUWOLFIA SERPENTINA	0708	1224	SCINDAPSUS OFFICINALIS	1184					
RAUWOLFIA SPP	0722	SCLEROCARYA BIRREA	1127						
REHMANNIA GLUTINOSA	0871	SCOPARIA DULCIS	1224	1073					
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RHIZOPHORA MUCRONATA	0686	0920	0922	0925	0937	0944	0962	1073	1091
RHIZOPHORACEAE	0686	SCUTELLARIA BAICALENSIS	0880						
RHODODENDRON SPP	1053	SCUTELLARIA LUZONICA	1105						
RHYNCHOSIA ALBISSINIA	1220	SELAGINELLA TAMARISCINA	0891						
RIBES UVA CRISPA	1077	SELINUM MONNIERE	1184						
RICINUS COMMUNIS	0875	0956	SENNAL INDICA	0771					
ROSA CANINA	0866	SENECIO RACEMOSUS	1008						
ROSA DAMASCENA	1165	SENNA CORYMBOSA	1019						
ROSA SPP	1061	SENNA LINDHEIMERIANA	1019						
ROSACEAE	1170	0675	0726	0751	0866	0890	0930		
0985	1025	1061	1068	1076	1165	1187	1191		
1219	1250								
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RUBIA CORDIFOLIA PRATENSIS	0730								
RUBIA TINCTORUM	1089								
RUBIACEAE	0670	1089	0722	0730	0740	0804	0900		
0979	1015	1041	1190	1212	1218	1228	1282		
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 0989 0785 0799 0802 0818 0822 0850 0871 0877
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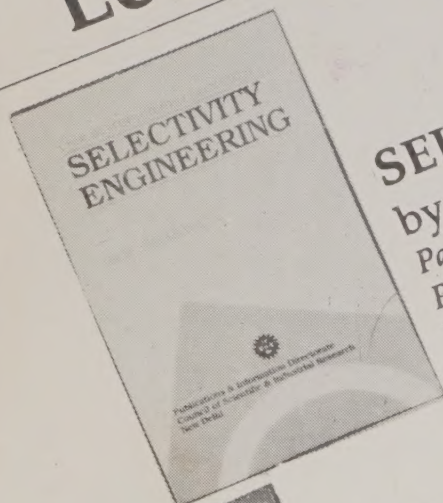
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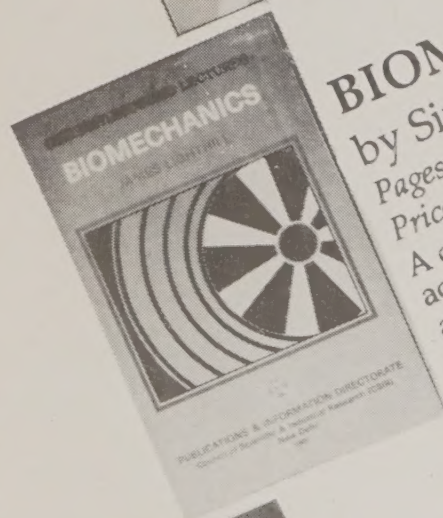
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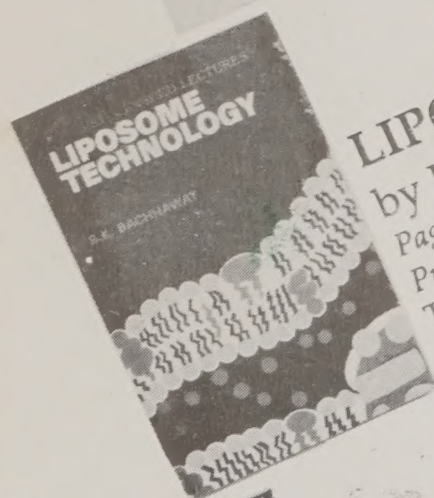
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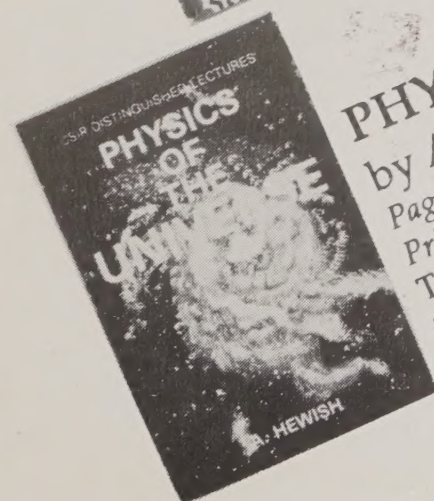
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